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Pulmonary Coccidioidomycosis*

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Human infection with Coccidioides immitis was first described by Posadas[1] and Wernicke[2] in 1892. The first two cases to be reported in North America were found in California by Rixford and Gilchrist[3] in 1896. They described the morphological characteristics of the parasitic phase of Coccidioides immitis in considerable detail. Ophüls and Moffit[4] isolated the fungus, Coccidioides immitis, in 1900 and established its etiological relationship. Ophüls (1905) gave the first complete description of the organism.[5] However, not until recent years has a clear concept of the pathogenesis and clinical course of coccidioidomycosis become apparent. In 1938 Dickson and Gifford[6] recognized that an acute pulmonary infection frequently associated with erythema nodosum which occurred endemically in the San Joaquin Valley of California, and known locally as "San Joaquin Valley Fever," "Desert Fever," "Desert Rheumatism," and "The Bumps," was the primary or initial stage of coccidioidomycosis. They called the initial phase of this disease primary pulmonary coccidioidomycosis. Unusual importance is attached to this disease, because the residual pulmonary lesions of primary pulmonary coccidioidomycosis resemble pulmonary tuberculosis in many respects.[7]

It is the purpose of this paper to review the pathogenesis of primary pulmonary coccidioidomycosis and describe the roentgenographic changes that take place in the lungs.

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INCIDENCE

Pulmonary coccidioidomycosis is found in four principal endemic areas in the United States: (1) California; particularly the San Joaquin Valley; (2) West Texas; (3) Arizona; (4) New Mexico. This disease has also been reported in other areas in the United States: Louisiana, Kansas, Colorado, and South Carolina. Outside the United States endemic areas exist in the Chaco region of Argentina in South America and possibly in Italy.[8] Persons of either sex may become infected at any age; however, the disease may be seen more frequently in males than females because of occupational habits. The dark-skinned races are more prone to develop severe forms of the infection and the mortality rate in this group is correspondingly higher. Skin tests made of large groups of persons have shown that the rate of infection is directly proportional to the length of residence in an endemic area.[9] Not infrequently, laboratory workers exposed to dried cultures develop the infection.

LIFE CYCLE OF COCCIDIOIDES IMMITIS

The fungus Coccidioides immitis exists in saprophytic and parasitic forms. The saprophytic form is found in dry sandy soil, where the organism reproduces by means of branching filaments (Hyphae) within which are found rounded bodies known as Chlamydospores. When the contaminated soil is disturbed, the hyphae break off and the chlamydospores are suspended in the dust. Inhalation of the chlamydospore-laden dust is followed by beginning of the parasitic phase in the host.

The exact sequence of events in passage from the saprophytic to the parasitic form is not known but according to the present concept, the fungus reproduces in its parasitic state by means of endogenous spore formation.[10] With the death of the host, it is believed that the parasitic form reverts back to the saprophytic form in the soil. This disease is prevalent among rodents and these and other desert animals may act as a reservoir in renewing the source of infection in the soil.[15] Transmission of the disease from man to man by means of sputum containing the endospores or spherules has not been described.[11] Theoretically, however, spherules in the sputum could germinate in floor dust and produce infective chlamydospores. The possibility of the germination of chlamydospores from endospores in cavity walls also exists.[25]

CLINICAL FINDINGS

Human infection with Coccidioides immitis may be seen either as an initial infection (primary pulmonary coccidioidomycosis)

or as disseminated Coccidioidomycosis (coccidioidal granuloma). The primary pulmonary form described by Dickson and Gifford is caused by inhalation of dust which has been contaminated with the chlamydospores of Coccidioides immitis. Although primary skin infection has been described, it is probably rare.[12] The disseminated form is apparently caused by a lymphohematogenous dissemination of the primary infection to lymph nodes, skin, bones, brain, lungs, liver, spleen, and other organs.

The incubation period varies between one and three weeks.

Most of the initial infections are asymptomatic. The percentage of positive coccidioidin skin reactors increases with length of residence in the endemic area. A large percentage of these individuals give no clinical history suggesting previous infection with this disease.[9]

When symptomatic, the onset of the disease is abrupt. It resembles an acute upper respiratory infection with chest pain, cough, expectoration, chills, fever, malaise, anorexia, joint pains, and headache. Skin eruptions appear in 2 to 5 per cent of the cases in one to two weeks after the onset, usually in the form of erythema nodosum. The skin eruption is similar to that seen in some cases of primary tuberculosis and is characterized by

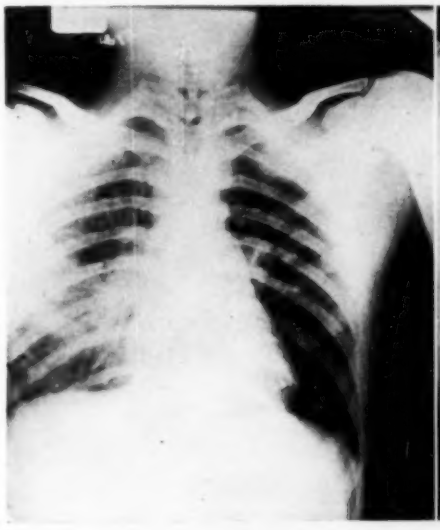

FIGURE 1

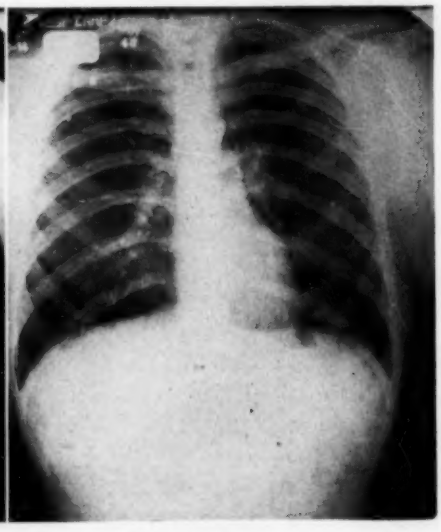

FIGURE 2

Fig. 1, Case 1: Pneumonia with Complete Resolution. Onset in New Mexico on September 8, 1943 with cough, chest pain and fever. Roentgenogram showed a pneumonic density in right lower lung field adjacent to right hilum. Coccidioidin skin test 1:1000 negative on September 15, 1943. Coccidioides immitis recovered from sputum. Coccidioidin skin test positive 6 weeks later.—*Fig. 2, Case 1:* Roentgenogram on October 14, 1943, showed complete resolution of the pneumonic density in right lower lung field. Scattered calcific densities in both lung fields antedated acute primary coccidioidomycosis.

painful, raised, red, nodular, dime-sized lesions usually located on the anterior aspect of the legs. Erythema multiforme is seen less frequently and usually involves the upper trunk, arms, shoulders, neck and face. Arthralgia is also seen at this stage of the disease in about a third of the cases, involving chiefly the lower extremities and lumbar spine. The arthritic symptoms are usually mild and of short duration.

Urticaria has also been described.[13] When it occurs it is generalized and intractable in nature. Loss of from fifteen to twenty pounds in weight is seen frequently in the early weeks of the disease.

DIAGNOSIS

The diagnosis of primary pulmonary coccidioidomycosis is based upon: (1) A history of recent exposure in an endemic area; (2) Roentgenographic evidence of pneumonitis and subsequent changes; (3) The recovery of the spherules of Coccidioides immitis in the sputum or gastric contents, and confirmation by animal inoculation; (4) A positive skin test reaction following the intradermal injection of coccidioidin; (5) Positive serological tests for

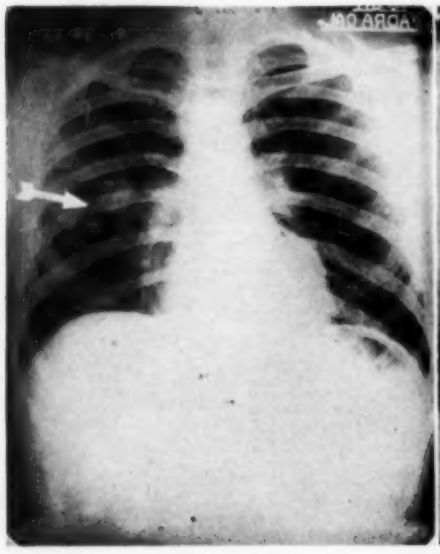

FIGURE 3

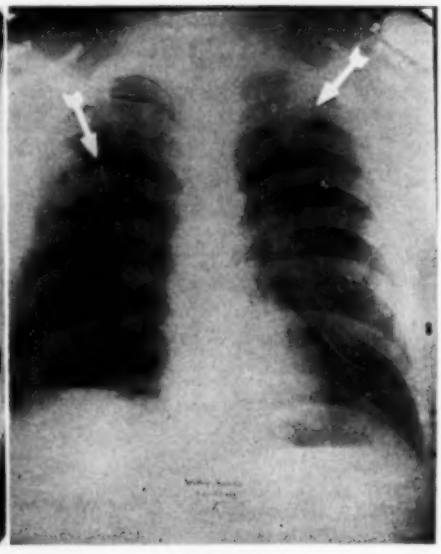

FIGURE 4

Fig. 3, Case 2: Residual Nodular Density. Onset in Southern Arizona on June 29, 1943, with right chest pain, weakness, and fever. Chest films showed slowly resolving pneumonia. Roentgenogram on August 14, 1943, revealed residual nodular density in right lung field which was still present on January 14, 1944. Coccidioidin skin test 1:1000 positive. Eosinophilia 15 per cent. Coccidioides immitis recovered from sputum.—*Fig. 4, Case 3: Multiple Residual Nodular Densities.* Acute onset in Southern Arizona with cough, chest pain and fever in November 1943. Roentgenograms revealed bilateral pneumonia in upper lung fields. Roentgenogram on December 17, 1943, showed partial resolution of the pneumonia, with residual nodular densities which were still present on January 12, 1944. Coccidioidin skin test 1:1000 positive. Coccidioides immitis recovered from sputum during period of acute pneumonia.

precipitins and complement fixation; (6) Increased sedimentation rate; (7) Eosinophilia.

PULMONARY MANIFESTATIONS OF PRIMARY PULMONARY COCCIDIOIDOMYCOSIS

The early pulmonary manifestations are those of a pneumonitis resembling either a primary atypical or bacterial pneumonia. This pneumonia may be lobular or lobar in extent and single or multiple in distribution. Hilar lymphadenopathy frequently accompanies the initial lesion. When the involvement is situated near the hilum it takes the form of a fan-shaped density radiating into the lung field. When located near the periphery of the lung, the lesion has a lobular appearance. Clearing of the pneumonitis usually takes place in from one to three weeks. Sometimes, clearing of a pneumonitis in the inner zone of the lung reveals enlarged hilar nodes which had been previously obscured by the parenchymal disease. A pleural effusion may accompany the initial pneumonitis and sometimes obscures the underlying disease.

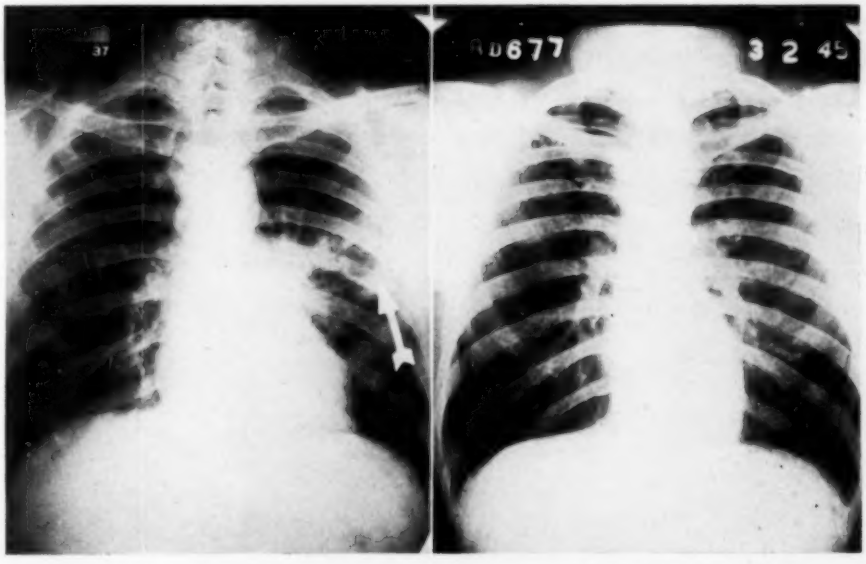

FIGURE 5 FIGURE 6

Fig. 5, Case 4: Residual Coccidioidal Cavity. Patient resident of San Joaquin Valley for many years. History of recurrent hemoptysis in January 1945. Roentgenogram on September 5, 1945, showed cavity with fluid level in left mid-lung field, and enlarged left hilar shadows. Coccidioidin skin test 1:1000 resulted in marked reaction. Serology tests showed persistent unchanged positive complement fixation reactions, indicating well-focalized cavity. Coccidioides immitis repeatedly recovered from sputum.—*Fig. 6, Case 5: Residual Coccidioidal Cavity.* Patient resident of San Joaquin Valley for many years. History of hemoptysis in February 1945. Roentgenogram on March 2, 1945, showed thin-walled cavity beneath right clavicle. No change in cavity during 9 months observation. Coccidioidin skin test 1:1000 positive. Complement fixation reactions positive in low titres. Coccidioides immitis cultured from sputum.

The manner in which the initial pneumonitis undergoes resolution has been studied at this hospital by means of serial roentgenograms. Previous descriptions of the roentgenologic character of the primary infection include various "types" of pulmonary lesions such as cavities, pneumonia, solitary and multiple nodular densities, fibrous strands, peribronchial infiltrations, enlargement of hilar and mediastinal lymph nodes and pleural effusion. Actually, these various manifestations were found to represent phases and stages of resolution of the initial pneumonitis. Some cases pass progressively from the initial stage of pneumonitis with enlarged hilar nodes to the formation of a rounded well circumscribed nodular density. Excavation of the nodular density may occur with formation of a cavity. Final healing occurs with or without a residual scar. Roentgenograms of the chest made at intervals after the acute infection may, therefore, show complete resolution, enlarged nodes, one or more nodules, cavities, evidence of fibrosis and scarring or a combination of several of these conditions.

The fate of the initial pneumonia can be summarized as follows:

1. *Complete resolution of the pneumonitis* may take place in two or three weeks. In the absence of clinical data, it is difficult

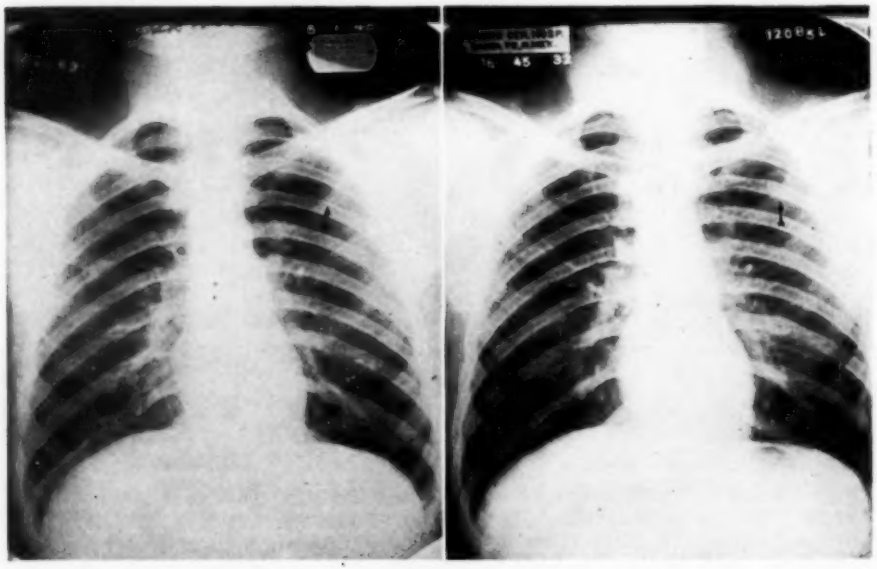

FIGURE 7 FIGURE 8

Fig. 7, Case 6: Residual Coccidioidal Cavity. Roentgenogram on May 1, 1945, revealed small, thin-walled cavity in left upper lung field. Coccidioidin skin test 1:1000 positive. Coccidioides immitis recovered from sputum.—*Fig. 8, Case 6:* Cavity in left upper lung field has increased in size as seen in roentgenogram taken on August 16, 1945. Note absence of perifocal reaction about the cavity.

FIGURE 9

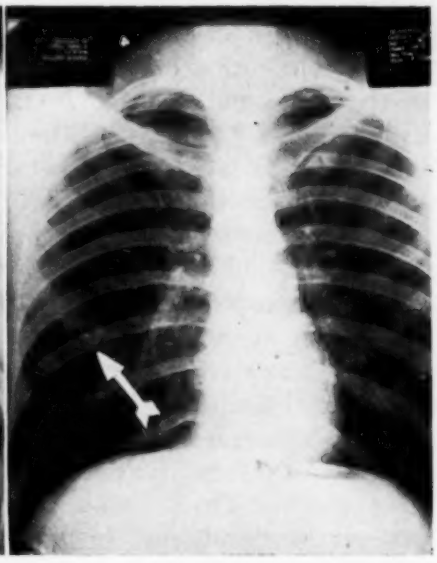

FIGURE 10

Fig. 9, Case 7: Residual Nodular Density which Excavated, with Persistent Cavity. Acute onset of pneumonia in Southern Arizona in November 1942. Roentgenogram on December 31, 1942, showed residual nodule in right lower lung field. Coccidioidin skin test 1:1000 positive. Coccidioides immitis repeatedly found in sputum. Complement fixation reactions positive.—*Fig. 10, Case 7:* Nodule has excavated. Roentgenograms revealed fluctuations in size of cavity over period of 2 years.

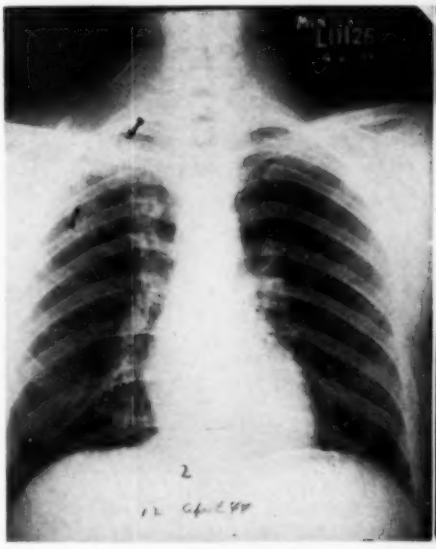

FIGURE 11

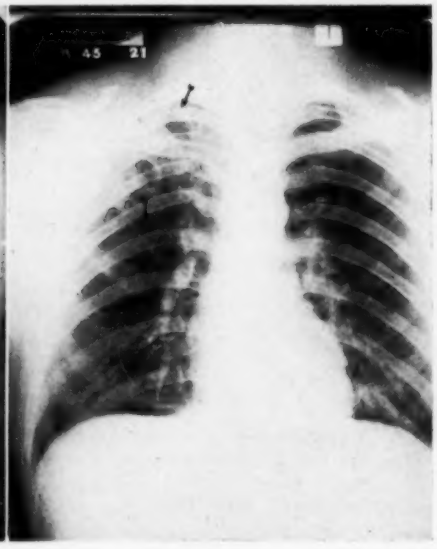

FIGURE 12

Fig. 11, Case 8: Residual Coccidioidal Infiltration Followed by Multiple Cavitation in One Lobe. Roentgenogram showed infiltration in region of right upper lobe. Coccidioidin skin test positive. Complement fixation reactions positive.—*Fig. 12, Case 8:* Excavation in right upper lobe has taken place with two large cavities seen on roentgenogram taken July 31, 1945.

to distinguish the pulmonary findings from a primary atypical or bacterial pneumonia (Figs. 1 and 2).

2. *Nodule formation* in the lungs has been observed frequently as the pneumonitis subsides. These are rounded well circumscribed areas of increased density varying in size from several millimeters to several centimeters in diameter. They may be single or multiple and can resemble a metastatic neoplasm. Where multiple areas of pneumonitis were seen in the initial infection, multiple nodules frequently persisted. These residual nodules may persist for months or even years (Figs. 3 and 4).

3. *Cavity Formation* at the site of the pneumonitis is not uncommon. The cavity may be preceded by areas of "honey-combing" in the pneumonic area. At other times, the area of pneumonitis shows progressive retraction and finally forms a rounded nodular density within which a cavity can be seen for the first time. When these cavities are situated in the upper lung field they may be difficult to distinguish from a tuberculous lesion (Figs. 5 to 14).

4. *Residual fibrosis* and scar formation may be seen following the pneumonitis. These fibrotic strands resemble fibrosis caused by a minimal tuberculous lesion. Sometimes calcification also occurs and the lesion has the roentgenologic appearance of the

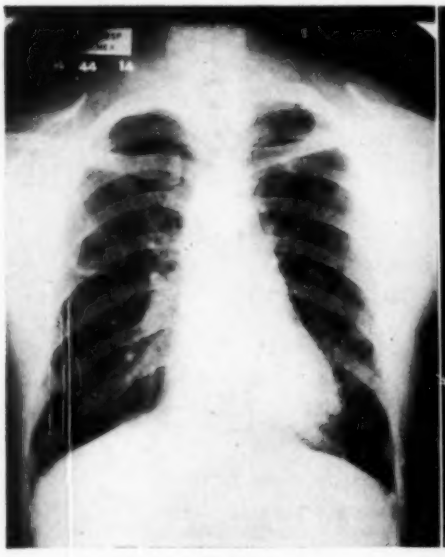

FIGURE 13

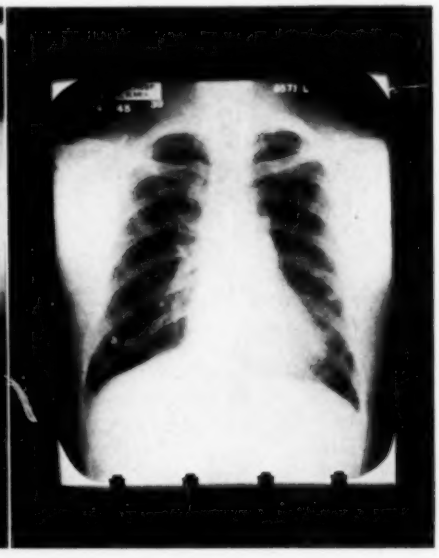

FIGURE 14

Fig. 13, Case 9: Residual Coccidioidal Cavity with Spontaneous Closure. Patient resident of San Joaquin Valley for many years. Roentgenogram on December 14, 1944, showed large cavity in right mid-lung field, with fluid level. Severe reaction to coccidioidin 1:1000 O. Complement fixation reactions repeatedly positive. Coccidioides immitis not recovered from sputum, probably because of bronchial occlusion.—*Fig. 14, Case 9:* Roentgenogram taken on August 8, 1945 showed spontaneous closure of large tension cavity. Residual pulmonary density is still present.

healed parenchymal component of the primary complex of tuberculosis (Figs. 15 and 16).

DEMONSTRATION OF COCCIDIOIDES IMMITIS

The spherules of Coccidioides immitis may be demonstrated in the sputum early in the disease by direct smear. The fungus can also be cultured and a saline suspension used for guinea pig or mouse inoculation. Not infrequently the spherules can be found in the gastric contents when the gastric specimen is rendered alkaline and the examination is made immediately.

COCCIDIOIDIN SKIN TEST

The skin test for primary pulmonary coccidioidomycosis is done in a similar manner to the tuberculin test. It is usually positive by the end of the second week although a positive reaction may not be seen for as long as six or seven weeks after the onset of the disease. It may persist for years.[14]

The testing material, coccidioidin, is a preparation of multiple strains of Coccidioides immitis and may be used in 1:1000 or 1:100

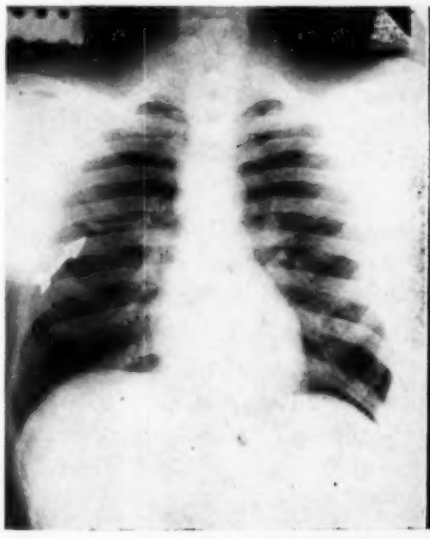

FIGURE 15

FIGURE 16

Fig. 15, Case 10: Residual Linear Density. Onset of acute upper respiratory infection in Southern Arizona. Roentgenogram revealed a slowly resolving pneumonia in the right lung field. Roentgenogram taken on November 26, 1943 showed a residual linear fibrotic strand on right side. Positive coccidioidin skin test in 1:1000 dilution. Coccidioides immitis reported in sputum at time of acute pneumonia.—*Fig. 16, Case 11: Residual Linear Density.* Acute onset in Southern Arizona with symptoms of upper respiratory infection. Roentgenograms revealed right upper lobe pneumonia. Roentgenogram on December 28, 1943, showed residual linear fibrotic strand extending into right mid-lung field. Positive reaction to coccidioidin 1:1000. Although spherules of coccidioides immitis were found early in period of acute pneumonia, sputum cultures at time of this roentgenogram were negative.

dilution. A positive skin test with coccidioidin is comparable to the positive tuberculin test and may be interpreted as hypersensitivity indicative of an infection, past or present. A change from a negative to a positive reaction is evidence that the patient has been infected in the interval. On the other hand, a loss of skin sensitivity may take place with dissemination of the disease and indicates a state of anergy. Cross sensitivity to the fungus, Haplosporangium Parvum, has been observed[15] but there is no cross-sensitivity to tuberculin.[16]

BLOOD AND SEROLOGICAL TESTS

Positive precipitin and complement fixation reactions are usually found in three or four weeks after the onset of the disease. Except where cavities develop or the disease disseminates, these antibody reactions do not persist. Sometimes the infection is too mild to stimulate the formation of humoral antibodies, and serological tests will be negative.

An initial leukocytosis associated with an eosinophilia is usually found early in the disease. It has been suggested that the arthralgia, erythema nodosum, and eosinophilia represent the development of hypersensitivity within the host to the initial infection. The sedimentation rate is usually accelerated and remains so for some time after the clinical symptoms have subsided.

DISSEMINATED COCCIDIOIDOMYCOSIS
(Coccidioidal Granuloma)

The disseminated form of coccidioidal disease usually develops relatively soon after the onset of the initial infection, but may also be a late complication.[17] It resembles in many respects progressive primary tuberculosis in its pathogenesis.[18] The dark-skinned races appear to be more susceptible to this form of the disease and the mortality rate is correspondingly high. The disease is disseminated through the blood and lymph, and usually involves a number of organs. However, isolated lesions may be seen. Occasionally there is a localized bone and joint infection with draining sinuses from which the organism may be recovered. It is noteworthy that dissemination of the disease is usually associated with persistent hilar adenopathy.

COMMENT

The variety of the pulmonary lesions produced by Coccidioides immitis as they undergo resolution has been described by Winn.[19] Colburn[2] has suggested they may be caused by a state of balance between individual resistance, dosage of the infecting organism, allergic status of the host, and intervals of successive repeated

infections. However, in the absence of sufficient pathological material for study the exact nature of the pulmonary changes remains unsettled.

Rarely, a case in which spherules have been recovered from a cavity will show a negative coccidioidin skin test suggesting that the patient has developed anergy. This condition is seen frequently when a fatal dissemination of the disease occurs.

The initial pneumonitis of primary pulmonary coccidioidomycosis is difficult at times to distinguish from primary tuberculosis, especially in a young individual, when the disease is accompanied by hilar adenopathy and erythema nodosum. The pulmonary appearance of the disseminated form of coccidioidomycosis may resemble carcinoma of the lung, other fungus infections, sarcoidosis, or miliary tuberculosis. Residual pleural diaphragmatic adhesions, parenchymal scars, or nodular infiltrations may suggest reinfection tuberculosis or the residual infiltration of a primary atypical pneumonia.

With the formation of a cavity, the disease must be distinguished from tuberculosis, lung abscess, and pulmonary cyst. The significance of a persistent cavity with regard to healing and dissemination is not clear. These cavities are often thin-walled and show no evidence of a surrounding perifocal inflammation. Bronchogenic spread of the infection as seen in tuberculosis rarely occurs.[11] Apparently, no one has observed involvement of the intestinal tract by Coccidioides immitis.[21]

In general there is no specific treatment for the acute initial infection other than bed rest. Recurrent, severe hemorrhage may occur from a residual pulmonary cavity. In such instances collapse therapy or even pulmonary resection has been employed to control this complication. The coccidioidal cavity frequently exhibits the characteristics of a tension cavity, and pneumothorax therapy may only serve to increase its mechanism. Disseminated coccidioidomycosis has been treated with colloidal copper, iodides, thymol, penicillin, and immunotransfusions from patients with high titres of antibody but without significant results. Jacobson[22] reported that vaccine therapy was followed by a regression of isolated skin coccidioidomycosis.

As a result of the exposure of soldiers to coccidioidal infection in training areas in the endemic regions, our knowledge of this disease has been increased in the following respects: (1) New endemic areas have been discovered;[13,23] (2) The relationship of residual pulmonary lesions to the initial pneumonitis has been clarified; (3) The differential diagnosis of residual coccidioidal lesions from other diseases of the lungs, principally from tuberculosis, has assumed great importance in the returning soldier.[24]

SUMMARY

1. Human infection with Coccidioides immitis causes an initial pneumonitis which may resolve completely or may leave residual nodular shadows, enlargement of hilar lymphnodes, cavities or parenchymal scars.

2. Pulmonary Coccidioidomycosis must be distinguished from other diseases such as pulmonary tuberculosis, sarcoidosis, other fungus infections and atypical pneumonia.

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RESUMEN

1. En el ser humano la infección con Coccidioides immitis causa una neumonitis inicial que puede resolverse completamente o puede dejar sombras de nódulos residuales, hipertrofia de los ganglios linfáticos hiliares, cavernas o cicatrices en el parénquima.

2. La Coccidioidomicosis pulmonar debe ser diferenciada de otras enfermedades, tales como la tuberculosis pulmonar, la sarcoidosis, otras infecciones causadas por hongos y la neumonía atípica.

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25 Case Presentation, Captain H. R. Barnes, in discussion of this paper.

Discussion

H. R. BARNES, CAPTAIN, M.C., AUS
Hutchinson, Kansas

I wish to congratulate Doctor Bass on this very interesting presentation of Pulmonary Coccidioidomycosis. I heartily agree, in his thought, that primary Pulmonary Coccidioidomycosis is (probably) a pneumonitis with various residual pulmonary lesions. I would like to emphasize two points:

1. Pulmonary Coccidioidomycosis mimics pulmonary tuberculosis in all its various forms.

2. I believe that the field of Mycology is in its earliest stages, and that further investigations, especially thru thoracic surgery and laboratory studies will throw additional knowledge on this disease and other related fungus infections.

During the war I have been stationed at Fitzsimons General Hospital, and am sorry to admit that we were not too Coccidioidal minded in early 1942. Although numerous acute cases have come in, of all the various stages, the majority represent the more chronic form which you and I will see in general chest practice. These patients have few symptoms and are usually picked up on routine x-rays, or x-rays because of small hemoptysis. The admission diagnosis is usually tuberculosis. Despite the case with which some writers describe the differential points I find it very difficult, and very few positive findings. At Fitzsimons we have

called only those cases Coccidioidomycosis, who have had positive sputum or gastric washing cultures for coccidioides immitis. This has been done despite history of exposure, positive skin tests, positive complement fixation titer, and x-ray studies. We have felt that it is better to give the Veteran the benefit of the doubt of a lesion, which 5 years ago would have been called Tuberculosis. Thus these soldiers may report to you that they were discharged with a diagnosis of tuberculosis, although, only from an administrative view point is this true.

I would like to further emphasize the similarity of these two diseases, and the difficulty in diagnosis with a few lantern slides.

L.X.: Patient was hospitalized for penicillin therapy of a positive serology. Routine chest x-rays revealed the following lesion. A diagnosis of tuberculosis was made with which I am sure most all will agree, however there was a history of training in the San Joaquin Valley in 1943 with hospitalization a few months later because of atypical pneumonia. These pictures were obtained and the following laboratory findings were noted:

Coccidioidin: 3 plus.

Tuberculin: 1 plus.

Gastric Washings: Positive for Coccidioides Immitis.

This emphasizes again exposure in an endemic area, and all will have to include this question in the careful history taking along with a family history of tuberculosis. The skin test was positive as was the Mantoux. Usually one finds the Coccidioidin skin test strongly positive, 2 or 3 plus, compared with a 1 plus tuberculin. However, we know that this frequently burns out more rapidly than the tuberculin sensitivity, despite positive cultures or as Dr. Smith advises, we may not have the proper antigen. From an x-ray view point, there are few characteristic findings in these nodular lesions. Coccidioidal lesions change probably more rapidly than tuberculosis. The pneumonitis may show rapid regression and retraction with various nodular formations or cavitations. The nodules may be single resembling metastatic lesions, or they may be multiple and scattered throughout the lung. The nodules may show central necrosis or a cyst-like cavity may develop. Case II demonstrates this phase.

S.Y.: This soldier was hospitalized following x-rays for commision. He had trained in the San Joaquin Valley from January to August, 1942.

Mantoux test: 1st strength, negative. 2nd strength, 2 plus. Coccidioidin skin test, 1:1000, 4 plus. Cultures were repeatedly positive for Coccidioides Immitis.

Fitzsimons being a chest center, thoracic surgery is considered in the treatment of many of the cases. Frequently we have seen innocent appearing tuberculoma break down into an active tuber-

culous process, consequently lobulectomy or lobectomy is frequently performed. Likewise, in considering lung carcinoma many benign tumors are removed. The following cases accordingly demonstrate the revelations in the problem of Coccidioidomycosis as a result of surgical intervention.

M.A.: This case was found upon routine examination prior to a contemplated tonsillectomy. Before thoracotomy the usual careful preoperative studies were completed, even to a diagnostic pneumothorax. Post operatively the lesion seemed a typical tuberculoma. However, on gross pathological examination the lesion was suspected of being a gumma. In the central area, there was a soft caseus material with the microscopic examination revealing the typical sphereles of Coccidioidomycosis. This intensified a review of past cases, and further studies of the disease.

The last slides show a case which was diagnosed Coccidioidomycosis in 1942, following complaints of frequent hemoptysis. He was discharged from the service, and throughout the following 3 years continued to have episodes of bleeding. Finally this summer, the hemmorhages became so severe that he was admitted to the hospital. Because of past experience of pneumothorax in these cases, this was not attempted. Surgery was decided upon and completed. His course has been uneventful to date. The important points from this operation were however, that the disease was not confined to one lobe, but had extended during the past 2 years, and had broken through the inter-lobar septum to invade the lower lobe. Secondly, in the large cavity was considerable mucous and pus, and numerous clumps of mucoid material in which were found chlamydospores, as well as Sphereles. The teaching has always been that a recovered individual retains a high degree of immunity to exogenous or endogenous reinfection. Likewise, these individuals cannot spread the disease to other individuals without first passing the fungus thru some other animal, such as the rat or squirrel, which seems to act as a reservoir for the chlamydospores. I'm certain these few surgical cases do not make us authorities on the disease, but the presence of myclial forms and the highly infective chlamydospores in the cavity causes us to question the previou esnoninfectious nature of the disease. Surgery has opened a new angle which is being carefully investigated at this hospital, and likewise with Dr. Charles Smith, of Stanford University, School of Medicine.

I wish to thank you for the opportunity to discuss this paper of Doctor Bass, and again wish to emphasize that Pulmonary Coccidioidomycosis must be thought of first when considering the differential diagnosis of tuberculosis, and lastly thoracic surgery is bringing the specimens to the pathologist for final diagnosis, and accordingly mycology will make big strides in the next few years.

Discussion

M. D. BONNER, M.D., F.C.C.P.
Jamestown, North Carolina

My experience with this disease has been nil. I have been very much interested in it, however, since hearing it discussed so much at the meetings of the American Medical Association and National Tuberculosis Association in Los Angeles in 1936 or 1937. Dr. Smith of Stanford University, who has been mentioned so many times today, agreed to send me some of his coccidiodin. An ampule of the coccidiodin, with control material, was received just after the meeting in Los Angeles, and skin tests were given to quite a number of patients in and out of the Sanatorium. These patients had tuberculous and non-tuberculous pulmonary diseases. In the group tested not one positive reactor was found.

Two of the patients tested were young college men, both football players, who had been scrimmaging on the same field. They developed mild respiratory symptoms, for which they were admitted to the College Infirmary under the care of Dr. E. McG. Hedgepeth. These boys had developed huge glands in each hilum, but no parenchymal or pulmonary lesions. They also had definite erythematous nodules on the lower legs. One on just one instep—the other boy on both legs, and they were definite nodose in type. These boys were tested and found to be negative. Incidently it was later concluded that these boys had a definite erythema nodosum with glandular involvement.

My experience, as you see, has been more or less a negative one, but I fear that in the future we may begin to see some of this coccidioidal infection in our Southern States. Some of our boys who have been manoeuvering in the desert area are more than likely infected, and it behooves us to be on the lookout for it.

Dr. Bass certainly has a clear conception of this disease. He has had a wealth of material, his presentation was excellent, and his conclusion certainly seems sound to me. I feel that we have been quite fortunate in having him and his splendid presentation on the program.

Lobectomy and Pneumonectomy in Pulmonary Tuberculosis*

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Memphis, Tennessee
JOHN S. HARTER, M.D., F.C.C.P.***
Louisville, Kentucky

Collapse therapy as an adjunct to bed rest and sanatorium care so changed the outlook for the tuberculous patient in the past twenty years as to remove much of the dread of the disease and bring to tuberculosis sufferers and their physicians alike new hope and courage. One collapse procedure after another has been added to the armamentarium of the phthisiotherapist, has been extensively applied, and has gradually settled into its rightful position when an initial enthusiasm has been replaced with understanding of its indications, best technic and limitations. There still remains, however, a group of patients for whom collapse therapy is unsuitable or inadequate.

Pulmonary resection by either lobectomy or total pneumonectomy has now been added to the list of operations applicable to certain tuberculous patients, and is being received with an acclaim and enthusiasm which, though modestly denied by its advocates, emphasize the immediately low operative mortality rate, and tend to relegate the hazards and unfortunate late results to the fine print at the bottom of the page.

There is a place for pulmonary resection in the treatment of pulmonary tuberculosis, not as a procedure in competition with any of the established measures producing relaxation of the lung, but in a well defined group of patients who have no reasonable hope of cure by collapse therapy. Most authors agree that indications for pulmonary resection include (1) extensive bronchial stenosis, (2) tuberculoma, (3) cavities failing to close under an adequate thoracoplasty, (4) cavities in the lower lobe situated where no form of collapse therapy will cause their closure and (5) tuberculous bronchiectasis. In those series of patients on whom

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lobectomy has been performed in preference to thoracoplasty, although thoracoplasty would have been possible, the late results two to four years after operation compare unfavorably both in terms of mortality rate and sputum conversion.

Our own limited experience and a critical analysis of the published reports of others have led us to point out some of the hazards of pulmonary resection in tuberculosis in the hope that it will help curb any undue overenthusiasm until such a time as the major difficulties connected with the procedure can be overcome.

These difficulties consist principally of the fact, (1) that tuberculosis is a disease which is not limited, when detectable on an x-ray film, to the parenchymal tissue of one lobe alone, nor in the majority of instances even to the parenchymal tissue of one lung; (2) that over distention of even apparently healthy lung tissue which has in it quiescent or inactive disease contributes to the reactivation of the infection; (3) that bronchogenic spread of the disease occurs in a relatively high percentage of patients (compared with thoracoplasty cases, for instance); and (4) tuberculous empyema, either pure or mixed with pyogenic organisms, is a frequent complication of no little significance.

Our series represents patients operated upon by us individually in separate institutions, and consists of eighteen patients upon whom pneumonectomy was performed (4) or lobectomy (10) for one or more of the above mentioned accepted indications; and in whom (4) tuberculosis was either not present or was unrecognized at the time of operation. This group of patients is too small for a statistical analysis to be of significance.

Among our eighteen patients seven are dead, seven are living with active tuberculous disease and four have no known complications—yet. Tuberculous empyema contributed materially to the deaths of five patients three to six weeks after operation. Tuberculous pericarditis was responsible for the death of one patient whose contralateral pulmonary lesion was improving, one year after operation. Apparent circulatory failure on the third postoperative day provided cause for the remaining death, although an autopsy revealed a contralateral spread of the disease also.

The empyema was considered inevitable in three of the five empyema cases because of the penetration by cavities through both visceral and parietal pleurae in two patients and across the interlobar septum in one patient. Extrapleural dissection failed to prevent the opening of these cavities. In one other such patient, the ensuing empyema was not fatal.

Exacerbation or spread of pulmonary tuberculosis was considered

a factor in four of the seven deaths, and late extension to the pericardium in one other patient.

Over distention of the remaining lung tissue has appeared responsible for activation of tuberculous lesions in at least four patients, including one of the fatal cases.

The future of the seven patients now living with active pulmonary tuberculosis is uncertain. One patient in this group will certainly die. The others are so far responding satisfactorily to treatment.

The fact that tuberculosis is *not a sharply localized disease* need not be too discouraging. The observation of Maier and others that the removal of the grossly involved lung tissue with elimination of the toxicity it produces helps other lesser lesions to improve, is certainly encouraging. This is not uniformly true, however, and as yet we are unacquainted with the factors which determine the behavior of lesser lesions in a specific patient.

Over distention of the remaining lung tissue following resection is unavoidable, at least for a period of time, unless one undertakes to perform a thoracoplasty routinely before lobectomy or pneumonectomy. Overholt advocates "tailoring the chest to fit the lung" which is certainly desirable, but which is not always immediately practical. We cannot agree with Maier that overdistention is of no significance, for in at least two cases here reported, tuberculous infection invisible on x-ray films was reactivated some months following lobectomy.

The first case is one in which a right upper lobe resection was performed because of a tumor mass which proved on microscopic section to be a tuberculoma and about which fine microscopic tubercles were found in the surgical specimen. After eighteen months of rest the patient resumed light duties, apparently well, but six months later was found to have active tuberculosis in the contralateral lung and a positive sputum.

CASE REPORTS

Case I: Rev. T. P. McG., age 28, was first seen in the office of one of us on March 9, 1943, stating that he had had blood streaked sputum intermittently since the fall of 1939, the most recent episode being one month previously. He complained of cough, productive of two tablespoonfuls of dark, occasionally purulent, tenacious sputum. He had a burning sensation occasionally present in the chest bilaterally, and stated that there had been a lack of energy for three years, occasional night sweats, and loss of about twelve pounds in weight over a period of one year.

Physical examination revealed no abnormal physical signs in the chest.

Total and differential blood counts were within normal limits, the blood sedimentation rate was normal, and sputum was negative for tubercle bacilli to examination by concentration and culture. These

findings corroborated reports from Dr. Paul A. Turner who had seen this patient a year previously.

X-ray films of the chest showed a sharply defined, smoothly rounded, dense shadow in the right mid lung field. No soft parenchymal infiltration was to be seen.

Bronchoscopic examination was normal, confirming the findings of Dr. Maurice Buckles fourteen months previously.

A diagnostic pneumothorax was induced, producing no change in the size or shape of the density within the lung, and suggested the presence of a solid tumor.

On May 7, 1943, the right upper lobe was removed by the individual ligation technic and the chest closed without drainage. Post operative convalescence was exceptionally smooth and the patient was allowed out of bed on the seventh post operative day.

The pathologist, Dr. N. L. Leake, reported the lesion to be a tuberculoma with miliary tubercles present in the lung parenchyma surrounding it.

For this reason the patient was returned to bed and sent home on a strict rest routine upon which he gained weight readily, was free of fever, but had some slight morning cough productive of a small amount of white sputum. This was later proved with bronchograms to be coming from a minimal bronchiectasis in the right middle lobe.

After eight months of strict bed rest, having gained thirty-five pounds in weight, with normal appearing lung fields and normal blood studies, the patient was allowed to gradually increase his activities. In May, 1944, a year following his operation, he was allowed fifteen minutes walking privilege daily, but was required to take a two-hour rest period in the middle of the day and assume an eight o'clock bed time.

In August, 1944, fifteen months after lobectomy, the patient spat up one of his bronchial sutures and began again to have a small amount of muco purulent sputum daily. This was found to be positive for tubercle bacilli. The following month Dr. Paul Turner found a contralateral spread of the tuberculosis and placed the patient again at bed rest. Recent reports indicate that the lesion is slowly clearing and the patient is again improving.

The second case is that of a school boy with bronchiectasis of the left lower lobe, negative sputum, but a family history of tuberculosis. Following his lobectomy the bronchial stump reopened, resulting in a small localized empyema which was drained. Nine months following the resection the small residual bronchocutaneous fistula was closed surgically and a few days later a tuberculous infiltration was first recognized in the remaining upper lobe.

Case II: Mr. B. H., age 16. The patient was first seen on July 17, 1944, complaining of cough for the greater part of his life, productive of about one teaspoonful of muco-purulent sputum daily. There was a history of expectoration of one tablespoonful of blood fourteen months previously, and again about four months before examination. There was recent loss of approximately twelve pounds in weight but the patient denied fatigue, fever or chest pain.

Physical examination revealed a few fine and medium rales over the left base posteriorly.

The blood picture was not remarkable, and x-ray films of the chest for lung detail were essentially normal except for some indication of interstitial fibrosis in the left base, and multiple fine discrete deposits of calcium scattered throughout both lungs.

Bronchograms revealed a number of greatly dilated, cylindrical and early saccular bronchiectatic pockets in the left lower lobe. All other bronchi were normal.

On September 11, 1944, the left lower lobe was removed with individual ligation technic and without drainage.

X-ray films immediately following operation showed the upper lobe to have expanded to fill the major portion of the pleural cavity, but the moderate pleural effusion was found difficult to aspirate, became purulent, and necessitated drainage ten days following the original operation. Some time between then and the date of discharge from the hospital, October 27, 1944, the bronchial stump reopened and unmistakable evidence of a bronchial fistula could be elicited.

The remaining upper lobe expanded satisfactorily, but a bronchocutaneous fistula was present which was closed surgically May 29, 1945.

Following this operation there appeared in the left lung field an exudative infiltration, the characteristics of which were rather typically tuberculous. Repeated sputum examinations, both concentration and culture were negative for tubercle bacilli.

In September, 1945 a painful swelling appeared in the scar of the old fistula. This was incised, evacuating a small amount of purulent material. The fistula has remained open and a biopsy of its granulation tissue shows typical tubercles.

X-ray film of October 17, 1945, shows the infiltration in the left lung field increasing in extent although the patient has been on a strict bed rest routine, and there appears to be a circular area of decreased density surrounded by a thin fibrous wall which is strongly suggestive of cavitation. A thoracoplasty has been advised.

Immediate *bronchogenic spread* of tuberculosis following resection can be minimized but has not yet been eliminated as a hazard attendant upon resection. An expert anesthetist who will keep the bronchi clean throughout the anesthetic, and a bronchoscopic aspiration of secretions immediately following operation are of utmost importance. Overholt's practice of operating upon the patient who is suspended over the table in the face down position appears to have merits. The fact remains that all tubercle bacilli are not automatically removed from the patient with operation and the difficulty experienced by patients in raising sputum following an operation must be an important factor.

Tuberculous empyema is certain to be a complicating factor in a relatively large percentage of patients following resection. As in three of our cases, cavities not infrequently penetrate the visceral and parietal pleurae, and opening them is inevitable. In the most expert hands the bronchial stump will reopen in a certain number of patients, especially in those for whom resection is

performed because of tracheo-bronchial disease. Even in those clean resections by the individual ligation technic in which no pulmonary tissue is violated, lymphatics bearing tubercle bacilli are necessarily severed. The imposition of a tuberculous empyema, either pure or mixed with pyogenic organisms, is a complication poorly tolerated by a chronically ill patient who has just undergone a major thoracic operation.

All men interested in the advancement of the surgical therapy of pulmonary tuberculosis are working through various approaches to eliminate the early and late complications attendant upon pulmonary resection, which is still in its pioneering and experimental stage. All who are intimately connected with the work recognize that what may appear to be a simple solution to the problem of tuberculosis by removing it, turns out in reality to be one complicated by many factors. The necessity of preparing the patient for operation by maintaining his blood protein, fluid and hemoglobin at normal levels, of expert anesthesia and of keeping his bronchi clean need not be elaborated upon here.

SUMMARY AND CONCLUSIONS

Pulmonary resection in the treatment of tuberculosis is a valuable addition to the armamentarium of the phthisiotherapist. It offers an opportunity to salvage a number of patients whose outlook for continuation of life or complete arrest of the disease would otherwise be exceedingly poor. The immediate mortality rate of the operation itself is gratifyingly low. However, the operation has been in general use too short a period of time to evaluate accurately the late and permanent results. The reappearance of activity in lesions previously quiescent is a disturbing observation, especially since the exacerbation can occur long after the patient is thought to be "well". This would indicate that all results published at the present time must be accepted with *well modulated enthusiasm*. Until the problem of overdistention of the remaining lung tissue, bronchogenic spread of the disease and tuberculous empyema can be regularly and uniformly overcome, a pulmonary resection must be reserved for those patients in whom collapse therapy will obviously prove ineffective. At present it cannot compete with thoracoplasty for safety and lasting beneficial results.

RESUMEN Y CONCLUSIONES

La resección pulmonar en el tratamiento de la tuberculosis es una adición valiosa al arsenal del tisioterapéuta. Este procedimiento ofrece la oportunidad de rescatar a un número de enfermos, cuyas expectativas de vida o de completa detención de su enfermedad serían, de otro modo, excesivamente malas. La mortalidad inme-

diata de la operación misma es satisfactoriamente baja. Empero, la operación ha estado en uso general durante un período de tiempo demasiado corto para apreciar con exactitud los resultados alejados y permanentes. La reaparición de actividad en lesiones previamente inactivas es una observación perturbadora, especialmente cuando se considera que la exacerbación puede ocurrir mucho tiempo después de haberse creído que el enfermo estaba ya "restablecido". Esto parecería indicar que todos los resultados publicados hasta la fecha deben ser aceptados con un *entusiasmo bien moderado.* Hasta cuando se puedan dominar con regularidad y uniformidad los problemas de hiperdilatación del tejido pulmonar restante, de la propagación broncógena de la enfermedad y del empiema tuberculoso, debe reservarse la resección pulmonar para aquellos enfermos en quienes la colapsoterapia resultará evidentemente ineficaz. Al presente la resección no puede competir con la toracoplastia en cuanto a la seguridad y los resultados beneficiosos duraderos.

Discussion

R. KYLE BROWN, M.D., F.C.C.P.
Greenville, South Carolina

I think both these papers on lung resection have shown us that we have a valuable addition to our armamentarium. As both Drs. Overholt and Carr have stressed, lung resection is not a competitive operation with thoracoplasty, but has a definite indication in selected cases.

Rapid progress must be conceded when it is pointed out to us that in the "so called" reasonable risk cases the operative mortality is approximately 5 per cent. We must not, however, become too enthusiastic and must continue to use caution in the selection of our cases.

With the improvement in technic, we can almost forget the dreaded complications so common in the earlier operations. Apparently, ulceration of the bronchial stump and contra-lateral spread are still to be dreaded.

Resection should find its ideal use in stenosis with secondary infection, tuberculoma and the basal lesions that have never responded well to the usual collapse measures.

I am sure that all of us have been disappointed in the end results of some of our thoracoplasties. Lobectomy or pneumonectomy may be the answer.

Spontaneous Hemothorax*

A Discussion of the Problem Based on Three Cases

ARTHUR BERNSTEIN, M.D., EMANUEL KLOSK, M.D., F.C.C.P., *and* AARON E. PARSONNET, M.D.

Newark, New Jersey

Hemorrhagic pleural effusions unassociated with trauma, new growths, or pulmonary infarctions are comparatively rare. As a matter of fact, only 145 cases have been described in the literature to date. If we should exclude pulmonary tuberculosis and complications of collapse therapy, the number is reduced to 43 until 1942,[1] and only one more case has been added since.[2] Of these 44 cases, only 4 were apparently true hemothoraces, unassociated with pneumothorax.[3] Even these cases suggested the possibility of being hemo-pneumothoraces in which the air had been absorbed by the time the disease became obvious, or it failed to be identified roentgenologically.

From the available literature, therefore, it appears that almost all hemothoraces have their origin in the rupture of vascular adhesions, either by a simultaneous spontaneous pneumothorax, or by an extreme effort in which a vascular adhesion is severed without the occurence of a pneumothorax. The spontaneous pneumothoraces in most instances, at necropsy, have been related to ruptured emphysematous blebs or cysts, present as the result of congenital or acquired pulmonary disease. In the latter instances, these blebs have been found in areas of scar tissue originating from previous parenchymal tuberculous disease. The bleeding is generally considered pleural, rather than pulmonary in origin, and the arguments in favor of this are: a) that intrapulmonic arterial pressure in the branches of the pulmonary artery is only 1/6 that of the systemic blood pressure, so that bleeding would cease with only a small rise in intrapleural pressure;[4] b) that when the severed adhesions are examined at autopsy, the proximal segment retracts toward the lung and the bleeding point lies in the distal segment.[1,2,5,6,7,8]

Clinically, Jones and Gilbert, and Korol emphasized a definite syndrome for this condition.[9,10] They divided the symptoms into three stages: 1) Sudden severe pain in the chest and dyspnea. (This is taken as evidence of a spontaneous pneumothorax).

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2) Temporary improvement, lasting several hours or days. (This is evidence that the pleura has become accustomed to the contained air). 3) Recurrence of pain and dyspnea and the appearance of the signs of hemorrhage. (This is evidence of internal pleural hemorrhage).

Recently it was our good fortune to come upon three cases of hemothorax; one was typically that of spontaneous hemo-pneumothorax. The second appeared to be a case of spontaneous hemothorax clinically, and on gross examination at postmortem; only after careful microscopy was a possible etiology found. The third case also simulated a true spontaneous hemothorax, and the real cause was not found until culture of the aspirated blood was obtained. This group of cases prompted us to reconsider the subject of spontaneous hemothorax. First the question arose as to whether or not spontaneous hemothorax and hemopneumothorax are the same, and secondly, whether true spontaneous hemothorax really occurs. With this in view, the following three cases are presented.

CASE REPORTS

Case I. Spontaneous hemopneumothorax. N. G., a 31 year old white male, was first seen by one of us, when he was complaining of severe, stabbing left chest pain. The patient was markedly pale and stated that he was perfectly well until 12/29/42, when he was suddenly seized with severe pain in the chest as he was getting off the bus on his return from work. The pain was agonizing, synchronous with respiration, and the patient collapsed. He was taken to the City Hospital, where he was strapped, sedated and sent home. For the next two days the patient complained of intermittent stabbing chest pain and slight shortness of breath; however, the pain was tolerable. His whole left chest became hyperesthetic, so that he could not bear any clothing and physical examination by percussion was impossible. Moreover, the patient became extremely pale. He was seen at this time in his home and referred to the hospital.

Pertinent physical findings were as follows: The patient was acutely ill, pale and writhing in pain; blood pressure was 110/80, pulse 110, respiration 40. Chest showed diminished to absent breath sounds on the left side, from the 4th rib to base, with hyper-resonance above the area and amphoric breath sounds. Heart: PMI in the 5th interspace inside MCL; sounds of good tonal quality; no murmurs; A2 accentuated over P2; regular sinus rhythm; PR=VR=110.

Laboratory Data: Hemoglobin 42 per cent, RBC 2,600,000, WBC 13,500, Polymorphonuclears 84 per cent, Lymphocytes 16 per cent; toxic granules were noted in the polymorphonuclear leucocytes. The chest roentgenogram on admission showed a left hydropneumothorax with fluid up to the 4th anterior interspace.

The chest was immediately aspirated and 1800 cc. of a dark brown hemorrhagic fluid removed, which did not clot on standing. Subsequent bacteriologic examination proved this to be sterile for acid-fast organisms and pyogens on smear and culture. The chest was now washed out with oxygen, the latter replacing the air. The lung rapidly re-expanded

and in the next 48 hours only a small amount of fluid reappeared; again this was aspirated and oxygen lavage repeated. On further re-expansion the true nature of the underlying disease became apparent. Several emphysematous blebs were demonstrated, the rupture of one of which caused the patient's symptoms.

Case II. A white male tailor, aged 41 years, was first seen seven months prior to his death because of hypertensive heart disease with chronic congestive failure. He was treated for this condition with digitalis, ammonium chloride, mercurial diuretics, rest and fluid restriction. His condition improved so that he was able to resume his work while under treatment. He was seen on August 28, 1944, when he awakened in the morning quite dyspneic. His dyspnea was severe enough to have him come to the office. On examination, his condition was unchanged from that of five days previously, except that on fluoroscopy he was found to have fluid in the right chest up to about the fourth interspace. No air was seen in the pleural sac and there was no movement of the fluid. Because of his cardiac status, this was considered to be evidence of cardiac failure and he was given another 2 cc. of Mercupurin and put to bed. He was seen at home about twenty hours later at which time his blood pressure had dropped to 140/90 and he was in a state of early shock. He was hospitalized and given oxygen at once because of the dyspnea. A tap was done shortly after admission in an effort to relieve the profound respiratory difficulty. Two hundred cc. of blood was obtained. This blood did not clot. His continued respiratory embarrassment necessitated further aspirations of from 300 to 1,000 cc. of blood per day. Smear and culture of this fluid were negative for acid-fast

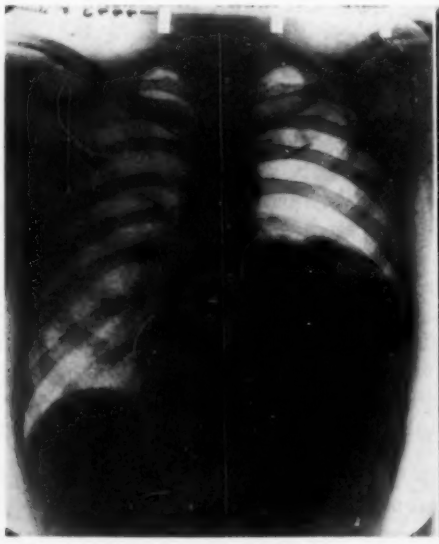

FIGURE 1

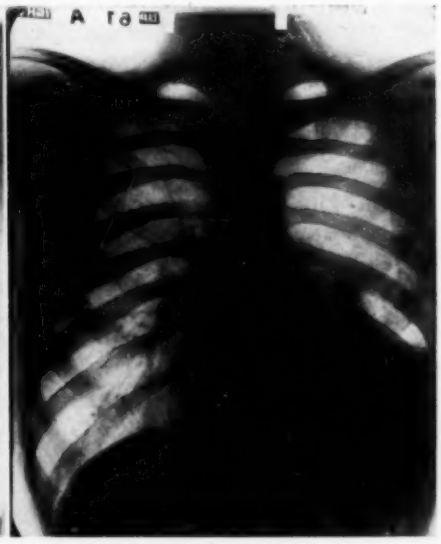

FIGURE 2

Fig. 1, Case I: Note hydropneumothorax, aspiration of which revealed liquid blood, which did not clot on standing.— *Fig. 2, Case I:* Film made after aspiration of the blood and oxygen lavage. Note how lung is reexpanding. Subsequent roentgenograms made after full reexpansion showed several emphysematous bullae at the apex of the left upper lobe, the rupture of one of which initiated the pneumothorax. For the pathogenesis of the hemothorax see text.

and pyogenic organisms; Guinea pig inoculation also showed no evidences of tuberculosis. The patient improved somewhat after each aspiration, but the fluid rapidly recurred and his dyspnea returned. On September 6, 1944, x-ray still showed evidences of much fluid, but no air in the right pleural cavity. The patient's condition became steadily worse in spite of treatment and he expired five days after admission.

Post-mortem examination performed through an abdominal incision revealed the following findings: The left lung and pleural cavity were essentially negative. The right pleural cavity contained about 100 cc. of a hemorrhagic fluid. The visceral pleura was covered with a thick, plastic exudate. The lung was collapsed and on section, its parenchyma failed to reveal any gross evidence of a neoplastic process. With the exception of a moderate degree of generalized arterio-sclerosis, the remainder of the gross findings were essentially negative.

On microscopic examination, a nodule, measuring 4 mm. in diameter, was seen in the lung parenchyma. The structure in this area changed abruptly from somewhat emphysematous lung tissue to a glandular structure consisting of tall, cylindrical, relatively differentiated epithelial cells which in some areas were several layers thick, and in others showed numerous papillary projections in the lumen. The cytoplasm stained well. The nuclei were irregular in size, round or oval in shape, and contained chromatin in a generalized reticular arrangement. Occasional mitotic figures were seen. In many alveoli the lumina were filled with desquamated, cylindrical and bizarre-shaped cells, or with large papillary excrescences. The microscopic appearance of the kidney showed some thickening of Bowman's membrane and occasional obliterated glomeruli with pronounced arteriolar hyaline thickening.

Anatomical diagnosis: Papillary adeno-carcinoma of the lung.

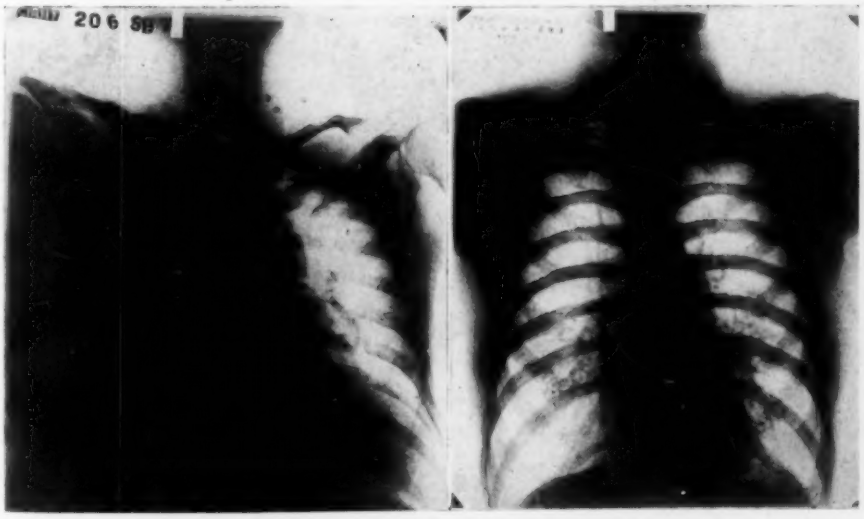

FIGURE 3 FIGURE 4

Fig. 3, Case II: Note huge hemothorax at first believed to be a pleural transudate, because of the associated congestive heart failure. Diagnosis proved by aspiration.—*Fig. 4, Case III:* Roentgenogram made after the absorption of the hemothorax. Note absence of parenchymal disease. Mottling in both lower lung fields is due to residual lipiodol.

Case III. A 25 year old male, was admitted to the hospital on September 10, 1941, complaining of left-sided chest pain of one week's duration. The patient had pain on breathing and was tachypneic, coughed only occasionally and then it was non-productive. No chills or night sweats. Examination was negative, except for large and infected tonsils, absent tactile fremitus over left chest posteriorly from sixth rib downward, percussion note flat and breath sounds absent over same area. Bronchoscopy was negative. On September 16, 1941, a thoracocentesis was done and 1,000 cc. of frankly bloody fluid was removed. This fluid did not clot. The sputum was negative for acid-fast bacilli on September 11, 15, and 25. Chest films showed no active tuberculosis. Culture of the aspirated blood was positive for acid-fast bacilli on September 27, 1941. The patient has been followed up for several years since he made an uneventful recovery after the hemothorax episode. At no time has an active lesion been found in the lung parenchyma and he is still in good health.

Case I fulfills all the criteria for the classic entity of spontaneous hemo-pneumothorax. The patient had emphysematous blebs at the apices of both lungs to start with; furthermore, the three classical stages as postulated in the literature, were present clinically. Finally, both on x-ray examination and by aspiration, the presence of a hemo-pneumothorax was definitely proven. We feel, therefore, that this case may be added to these already cited in the literature as a true spontaneous hemopneumothorax, a rare but important diagnostic problem.

Case II embodies a totally different situation, since there are many ramifications to the questions which it poses. That we did find a malignancy in the lung apex brooks no argument; but this was discovered only after the most diligent microscopic search and was not even vaguely suggested at the time of the gross examination. Be this as it may, this fact gives rise to several avenues of thought. Did the neoplasm erode a blood vessel and thus produce the hemorrhage or was it a true spontaneous hemothorax and, if this was due to macroscopically invisible growth, how many cases of spontaneous hemothorax are truly idiopathic?

Let us discuss the first question by assuming that the malignant tumor was too small to produce blood vessel erosion and that this was a case of spontaneous hemothorax in which the neoplasm was purely incidental. If this is true, the hemorrhage must be explained in some other way; there are two possibilities which readily suggest themselves. The patient had advanced arteriosclerosis; therefore it may be assumed that a systemic parietal artery, weakened by atheromatous degeneration was ruptured by the elevated systemic pressure which was present, a so-called "pleural apoplexy". Another possibility is that there may have been a rupture of a parietal pleural vein, secondary to the elevated venous pressure resulting from right heart failure.[11] We

have, therefore, these two possible explanations for the hemothorax and need not attribute the rupture of a pleural blood vessel to a microscopic pleural metastasis; thus we are justified in citing this as a true case of spontaneous hemothorax.

Based upon these facts, we may then go a step further and state that a distinction should be made between spontaneous hemothorax and hemo-pneumothorax since it is possible to conceive of a hemorrhage without presupposing an antecedent pneumothorax. This patient never displayed the clinical syndrome of the three stages cited by Korol. X-ray failed to reveal any evidence of pneumothorax, in spite of the fact that he was followed carefully from the time of onset of his symptoms; there were no blebs, apical scars or pleural adhesions and yet, a hemorrhage occurred probably due to "pleural apoplexy" without pneumothorax. So, though it is probably an extreme rarity, one must bear in mind the fact that a spontaneous hemothorax may occur.

Should it be assumed, however, that the microscopic neoplasm found in Case II, caused the hemothorax by eroding a blood vessel, then all the literature on the subject must be reinvestigated. With no macroscopic evidence of malignancy, it was only a stroke of good fortune and diligent search that enabled us to find it microscopically. Case III also presents some interesting features; this one would also have been classed as spontaneous hemothorax were it not for the positive culture. Certainly with a negative sputum and roentgenograms showing no parenchymal tuberculosis, the diagnosis would not have been made without careful culture of the aspirated blood.

These two cases which we have presented lead to the following conclusions: a) One can conceive of a spontaneous hemothorax without pneumothorax under certain conditions; b) most cases of spontaneous hemothorax should be reinvestigated in the light of the possibility of microscopic neoplasms or pleural tubercles being the etiologic factors producing the hemorrhage.

From a clinical point of view, the important question is whether or not to aspirate this blood. It is interesting to note that the aspirated blood from a hemothorax does not clot; Almeyda uses Trousseau's explanation for this phenomenon.[2] He states that the respiratory movements whip and thereby defibrinate the blood, depositing the fibrin on the pleural surfaces. This is said to occur within six hours after bleeding. Theoretically, then, if aspirated blood does clot, it must be from a fresh hemothorax. It is this very fibrin-depositing action which makes it essential to aspirate the blood as soon as possible. For, if allowed to remain, the fibrin will become organized, producing firm pleural adhesions with marked pleural thickening, incomplete lung expansion, retrac-

tion of the heart, lung and mediastinum to the affected side, elevation of the involved hemidiaphragm and flattening and deformity of the chest with scoliosis. These changes may in turn cause cardiac embarrassment which in itself may lead to death. It is important therefore to aspirate the extravasated blood. This has also been proved over and over again in chest wounds seen in the present war.[12]

SUMMARY

1. One case of spontaneous hemopneumothorax, one of hemothorax due to a neoplasm found only microscopically, and one of hemothorax due to tuberculosis of the pleura are reported.

2. The clinical syndrome and physiologic factors involved in spontaneous hemopneumothorax are presented.

3. The factors which may produce a spontaneous hemothorax without pneumothorax are discussed to show that spontaneous hemothorax and spontaneous hemopneumothorax are not necessarily stages in the same condition.

4. The danger of making a diagnosis of spontaneous hemothorax without careful investigation is reiterated on the basis of the presented cases.

5. The importance of making a diagnosis of hemothorax and the need for aspiration are emphasized.

We greatfully acknowledge the kind cooperation of Drs. Lester Goldman and Joseph Grundorfer of the Department of Pathology, Newark Beth Israel Hospital and Drs. Irving Willner of the Phthisiological Service, Newark City Hospital and N. James Furst of the Department of Radiology, Newark Beth Israel Hospital.

RESUMEN

1. Se informa sobre un caso de hemoneumotórax espontáneo, uno de hemotórax ocasionado por un neoplasma que fue descubierto sólo mediante el microscopio y uno de hemotórax ocasionado por tuberculosis de la pleura.

2. Se presenta el síndrome clínico y los factores fisiológicos operativos en el hemoneumotórax espontáneo.

3. Se discute los factores que pueden producir un hemotórax espontáneo sin neumotórax para demostrar que el hemotórax y el hemoneumotórax espontáneos no son necesariamente períodos en la misma condición.

4. Tomando por base los casos presentados se recalca el peligro de hacer un diagnóstico de hemotórax espontáneo sin una investigación cuidadosa.

5. Se hace hincapié sobre la importancia de hacer el diagnóstico de hemotórax y de la necesidad de la aspiración es su tratamiento.

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Pulmonary Actinomycosis

(Report of the First Case Observed in the Isthmus of Panama*)

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The incidence of pulmonary or thoracic actinomycosis has not been reported in the Isthmus of Panama, as confirmed by bibliographic review, prior to this communication. We can say the same regarding the records of this Hospital, notwithstanding the fact that in the clinical histories of some patients the final diagnosis of pulmonary actinomycosis is found. Because such diagnosis has never been confirmed by laboratory methods they are not justifiable. Therefore, we want to report the first case of thoracic actinomycosis observed in the Isthmus of Panama.

A.M., twelve years of age, from Santiago de Veraguas, 500 miles inside the country, a white female student, came into this hospital on December 22, 1944, with the diagnosis of "Observation of Pleuro-pulmonary fistulae" and with the history of having sustained a year before a heavy trauma to the left hemithorax, which compelled her to obtain hospitalization in the Provincial Hospital of Santiago de Veraguas where they performed, two months later, a surgical drainage for empyema, considered then a complication of the trauma received. There is nothing important in the family history and past illnesses, with the exception of malaria and intestinal parasitism.

We were called in consultation to study the possibility of a mycosis in evolution, since repeated sputum examinations had been completely negative and the general condition of the patient had apparently not improved after one and a half months of hospitalization and treatments with sulfadiazine and penicillin (she had several courses with this sulfa-drug from January 11 to 18, with a total of 14 grams; from January 23 to 29, 12 grams in all; and the third course of 3 grams from the 4th to the 5th of February. She had also had two courses of penicillin: the first from January 3 to 9 with 248.000 Oxford units and the second from the 5th to the 9th of February with 240.000 Oxford units). Our laboratory investigation was also negative (there is another report prior to the treatment from the General Laboratory of this hospital that was negative for mycotic organisms). We asked to be called again when a new vesiculation or abscess developed in order to obtain pure material for examination. We knew that it was not the right time to do so, considering the fact that several courses of sulfa and penicillin had just been given; and we assumed that, although they both had not been given in regular and sufficient quantity for the satisfactory cure of a pulmonary-pleural mycosis with multiple fistulous tracts, it was sufficient to warrant the investigation of its causative agent.

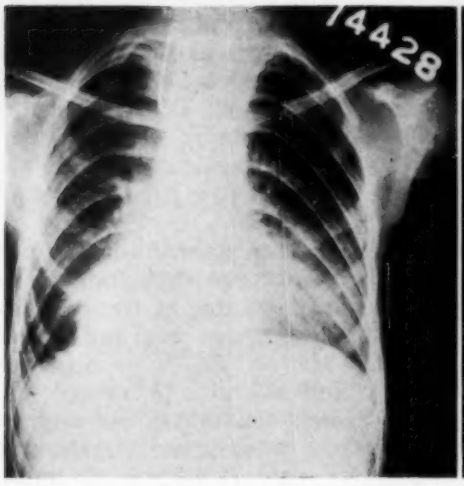
Seven months later we were called again in consultation because the

*From Santo Tomas Hospital.

patient was becoming increasingly worse. She had shown three new fistulas, had lost 5 more pounds and the coughing and morning expectoration were becoming worse. The expectoration was of a greenish-yellow color, not too offensive in odor and very sticky. The fever was irregular in type, usually remittent, ranging between 37.2 C. and 38.5 sometimes as high as 39.5 C. The pulse ran accordingly with the temperature; and the respiratory rate was 22 to 26 per minute. She was more anemic, thinner and weaker, and had much pain in the base of the left hemithorax.

The physical examination revealed a pale, thin, unenthusiastic, undeveloped white female, in febrile stage, with no secondary hair development and hippocratic fingers. Towards the right side of the neck we found a scar from a previous biopsy (which specimen had not shown any pathology). In the posterior part of the thorax (fig. 1), we observed six fistulous openings (two of them from her previous operation that never healed) and a zone of dark, fluctuant skin, which had not drained yet. From all these fistulae drained an easily-adherent, heavy, yellowish liquid with no odor whatsoever. The fistulae were of chronic evolution with no appreciable perifocal reaction and with irregular but flat edges. The rest of the examination revealed the following pertinent findings: Lungs: diminution of the vocal fremitus and of the vesicular breathing, with flatness in the left base, and with no appreciable change in the spoken and whispered voice. Heart: the apex was in normal position; there was a systolic murmur without transmission peripherally, of the hemic type; there was accentuation of the 2nd pulmonic sound; blood pressure was 110 over 66. Abdomen was soft, depressible, non-tender. The liver was enlarged by 2 cm. below the right costal margin, soft and not painful. The spleen was enlarged 3 cm. below the left costal border. It was soft and also non-tender. The lymph nodes in both axillae and precervical regions were increased in size, movable but not tender.

Fig. 1: Multiple fistulous tracts from which drained yellowish fluid, with little or no odor, and in which the typical ray fungus was encountered.



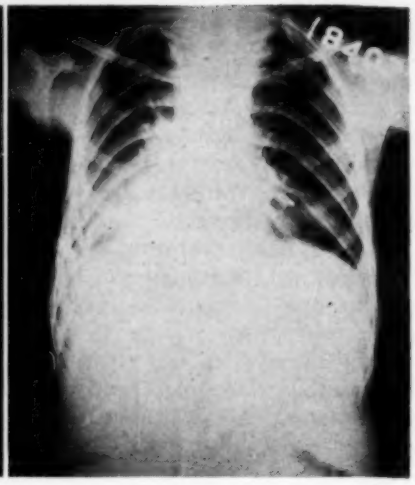
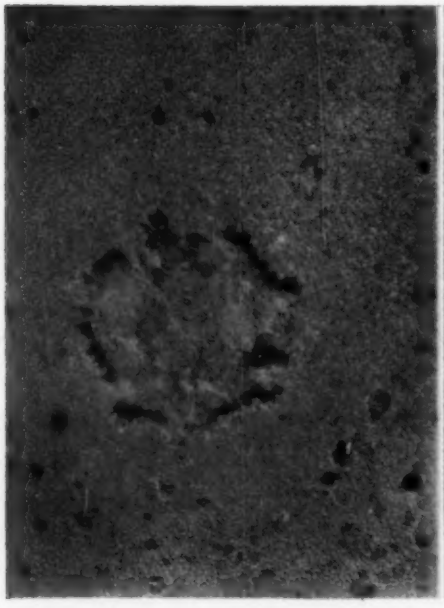


Figure 2 Figure 3

Fig. 2: X-ray, at the time of admission to the hospital in December, 1944; there was consolidation of the lower right lobe of the lung; moderate intertracheo-bronchial adenopathy, and thinning with the surface irregular (but without osteomyelitis nor osteoporosis) of the left fifth rib in the anterior one third.—*Fig. 3:* Chest plate after 6 months. The process in the right base was clear. The left base now showed a thickening of the pleura with moderate pulmonary changes. The other condition mentioned previously remained constant (Fig. 2).



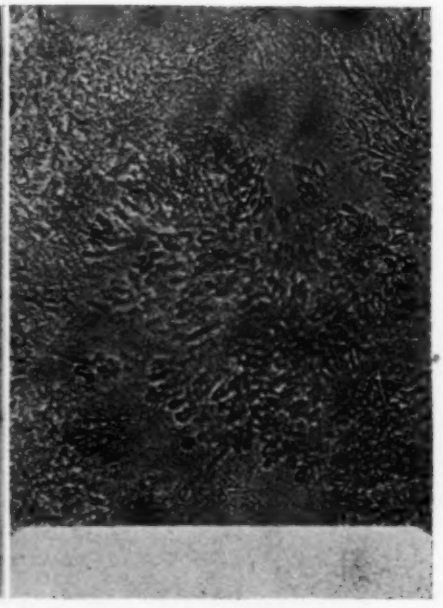


Figure 4 Figure 5

Fig. 4: Ray fungus, with its two pypical areas, obtained in sputum (x 100).
Fig. 5: Ray fungus, with the characteristic "club" forms visible (x 800).

The study of the laboratory examinations, in relation to the hemogram, revealed that she improved slightly during the sulfa-penicillin courses, and that in general, the red blood cells and hemoglobin content had increased from 2.4 millions and 55 per cent to 3.8 and 60 per cent. Prior to this and up to the time we were called for consultation, the number of red blood cells had decreased to 3 millions and the hemoglobin to 50 per cent, with hypochromicnormocytosis; sedimentation rate of 34 mm. per hour; leucocytosis (ranging between 70 and 88 per cent); eosinophilia (between 2 and 10 per cent) and lymphopenia (between 10 and 18 per cent).

The sputum examination was repeatedly negative for the bacillus of Koch; Kahn test was negative. Repeated examination for blood hematozoa were negative. The feces showed Uncinaria and Trichiurasis. The urine was essentially negative.

The radiographic examination of the spinal column, in the cervico-dorso-lumbar regions was negative. The fifth left rib appeared thinner than normal and irregular but no osteomyelitis nor porosis was observed. The multiple pulmonary x-ray plates taken during her hospitalization period showed at the onset (fig. 2), a consolidation of the inferior lobe of the right lung; tracheobronchial nodes visible and coniform shadow in the upper-central part of the thorax. This pneumonic process had not changed one month later. In another report, two months later, at the time the patient had received sulfa and penicillin treatment "there seemed to be an improvement in the old process." At the sixth month, however, there was what appeared to be pleural thickening of the left

Figure 6

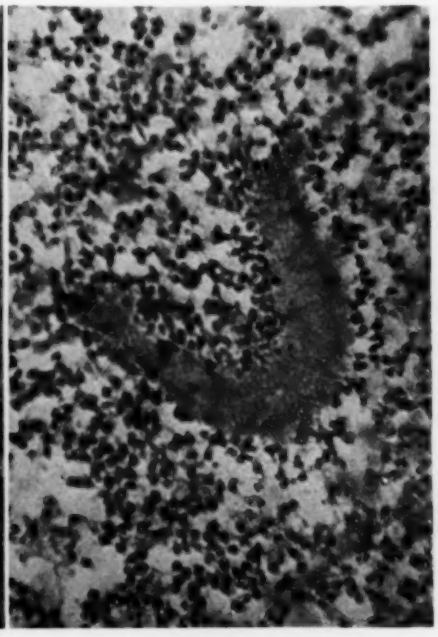


Figure 7

Fig. 6: Partially occluded blood-vessel in the biopsy, containing blue-stained filaments in some fields and red filaments in other fields. The vascular wall is thickened with cellular infiltration and peri-vascular fibrosis (x 800).—*Fig. 7:* Ray fungus, from biopsy material, with its characteristic appearance; in the peripheral portion the "club" forms are evident (x 800).

base of the thorax and some pulmonary condensation with the picture also of the other conditions before reported (fig. 3).

The examination which we made of the pus from the fistulae, and from the dark-skinned fluctuant mass, revealed the presence of the characteristic (figs. 4 and 5) ray fungus (which could be found afterwards in the sputum). This ended any doubt in regards to the etiologic diagnosis of the patient's infection.

HISTOPATHOLOGY: The microscopic examination of the excised nodule at the border of the largest fistulous opening showed in the epidermis marked acanthosis with projection of the rete pegs into the underlying tissues. The dermis showed leucocytic infiltration of the polymorphonuclear type about the blood vessels of the papillae; the vessels showed thickened walls with proliferation of their adventitial layer. The subcutaneous tissues showed a zone of infiltration with polymorphonuclear leucocytes and macrophages, without association with fungi, surrounded by fibrous tissue and macrophages; vessels with thick walls, like those of the dermis, some of them partially occluded (fig 6) by pink or blue stained filamentous forms; and ray fungus (fig. 7), stained pink in the outer zone and brown in its central part, with definite "club" forms surrounded by polymorphonuclear infiltration; outside this zone was seen granulation tissue infiltrated with macrophages and polymorphonuclear cells surrounded by fibrous tissue infiltrated with plasma cells. No giant cells were seen.

MYCOLOGICAL STUDY: Examinations, both of the pus of the fistulae and sputum, showed the characteristic actinomycotic forms of ray fungus (figs. 4 and 5), with the "club" forms at the periphery. Culture of the pus of the fistulae was done on Sabouraud's medium at room

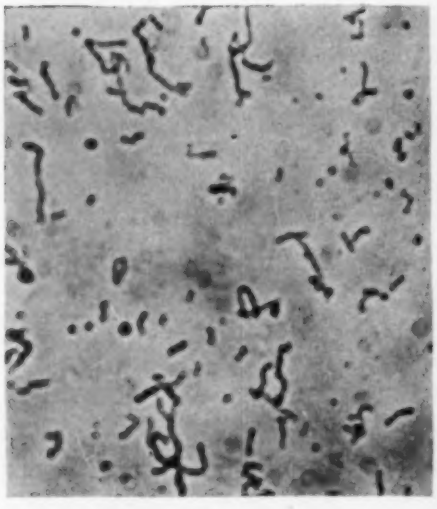


Figure 8

Figure 9

Fig. 8: Microscopic appearance of the culture in normal saline suspension. One may observe filamentous, non-segmented, branching forms; one also notes the presence of micro and macro-coccal forms (x 1600).—*Fig. 9:* Chest plate taken at the time of discharge from the hospital, and in which there is still some shadow in the left base, interpreted as "resolving pleural thickening".

temperature (28° C), aerobically and anaerobically; after three weeks of incubation mycotic colonies growing aerobically were clearly visible with wrinkled surfaces of a creamy consistency and whitish-yellow color, becoming more yellow with time. Transplantation of a colony showed a definite growth of pure culture within 36 hours of a strain, whitish in color, becoming more yellow with age, moist and with the odor of damp-earth, wrinkled surface at the center and smooth at the periphery.

The microscopic examination of the strain growing on the slides at room temperature (28° C) showed filament forms (fig. 8), non-segmented, with refractive granules, with imperceptible cellular membrane, branching and of variable length. In the old cultures some of the filaments were long and others short (bacilliforms), with one end wider than the other; and some were small and many were large coccal forms. Staining of a thin smear of the fungus in normal saline suspension, revealed that the developed organism was Gram-positive and not acid-fast.

Fermentation tests and culture in blood-agar at incubator temperature were done; there was not any hemolysis and the fermentation tests were of the type reported for Nocardia Asteroides.

TREATMENT, EVOLUTION and PROGNOSIS: Immediately after the etiologic diagnosis of the condition had been established by laboratory confirmation with the finding of the ray fungus with typical "club" at the periphery, we initiated the treatment with penicillin, 20,000 Oxford units every 3 hours, day and night (3 to 15). At the same time, as general treatment, thiamine (10 mg. t.i.d.), ascorbic acid (50 mg. t.i.d.),

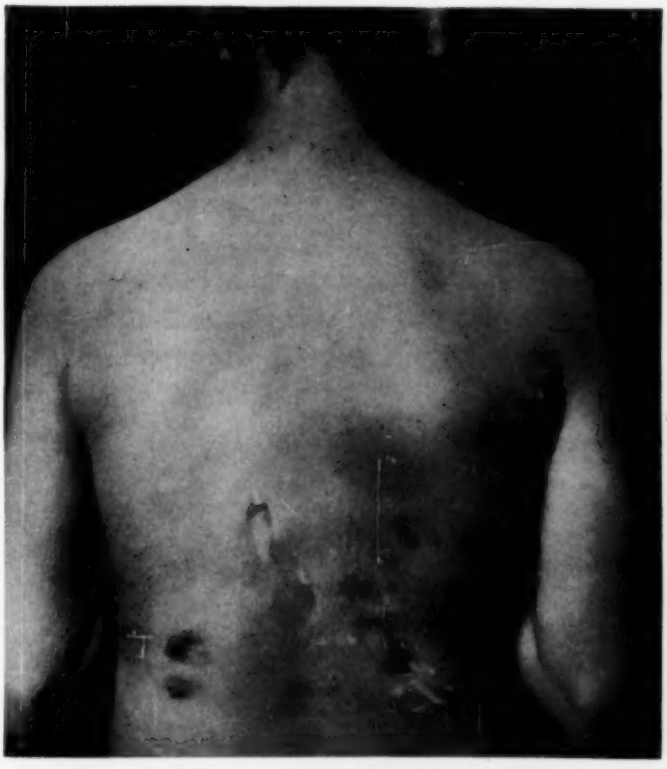


Fig. 10: Appearance of the healed fistulous tracts at the time the patient was discharged from the hospital.

ferrous sulphate (gr. V b.i.d.), and a diet rich in iron and calories, absolute rest in bed and local treatment which consisted of daily cleaning with 4 per cent boric water, and sterile dressings.

The study of the temperature curve showed that after 92 hours the temperature was normal, and so were the pulse and rate of respiration. This had been maintained until the present moment, three months later. Her general condition changed rapidly and steadily; her weight increased five pounds in 15 days, 9 pounds in 21 days and 18 pounds in 3 months. The hemogram showed that the red cell count had gone up from 3 to 4.5 millions and the hemoglobin from 50 to 90 per cent. The cough and expectoration disappeared at the end of the second week and locally we could appreciate that the fistulous tracts were draining less quantity of sero-purulent fluid, and that after the third week it was no longer possible to find the granules. The superior sinus tracts started to heal during the first two weeks and the last three healed at the end of the eighth week (fig. 9).

Seventy-three days after the initiation of the treatment which was maintained regularly in the way above mentioned, with the exception of nine days (Dec. 3 to 12 inclusive for resting), the patient left the hospital *apparently* cured, after having received 7.5 million Oxford units of penicillin with 18 pounds increase in weight, 2.5 millions increase in red cells and 40 per cent rise in hemoglobin, a normal differential, healed fistulous tracts, and no coughing nor expectoration.

In spite of all this the prognosis is hard to tell because of the still rapid sedimentation rate and the thickening of the pleura (fig. 10) in the base of the left hemithorax. We will have to wait for about a year and a half for a final prognosis. We believe, however, that the patient has improved so much that we may venture to say she is apparently cured of her thoracic actinomycosis.

SUMMARY

The first case of pulmonary actinomycosis with multiple fistulae of the thoracic wall is reported in the Isthmus of Panama, as checked by the bibliography up to December 1945.

The mycological study demonstrated that the pathogenic organism was Nocardia asteroides.

The treatment with penicillin apparently cured the patient of her actinomycotic lesion.

It is necessary to wait for at least 18 months to definitely assay the future of the patient from the standpoint of her mycotic lesion.

SUMARIO

Se reporta el primer caso de actinomicosis pulmonar en el Istmo de Panama de acuerdo con la bibliografia examinada hasta diciembre de 1945.

El estudio micológico demostró que el organismo patógeno fué Nocardia asteroides.

El tratamiento a base de penicilina dió excelente resultado con cura aparente de la lesión actinomicósica de la paciente.

Es necesario, para concluir definitivamente sobre su futuro patológico, seguir observándola por no menos de 18 meses de acuerdo con las más recientes recomendaciones aceptadas.

Vitamin D—Its Bactericidal Action

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In a previous report, after intra-pleural injections of vitamin A and D concentrate into tuberculous empyema, the disappearance of tubercle bacilli has been noted.[1] Further clinical trials (including cases of mixed infected tuberculous empyema) revealed that vitamin D is a bactericidal substance. Micro-organisms present in these infected pleuras and found susceptible to vitamin D were tubercle bacilli, proteus vulgaris, B. aerogenes, staphylococci and non-hemolytic streptococci. In vitro these same organisms and others were tested and found to be inhibited in growth and/or lysed by vitamin D. Therefore, it can be stated that vitamin D is a bactericidal, bacteriostatic and bacteriolytic substance in vivo and in vitro.

Vitamin D (calciferol) is a chemotherapeutic, a substance well known to the chemist, non-toxic, available in pure state, about which further investigations as a chemotherapeutic will have to be conducted to establish its final place.

This study will deal mostly with vitamin D in tuberculosis and will mention briefly other applications.

Tuberculosis: Two different methods were used in evaluating the bactericidal and bacteriostatic substance in the vitamin preparation.

1. The different vitamins were added to the culture media to which infected tuberculous material or cultures of tubercle bacilli were applied. Three media were used simultaneously (Hohn's, Loewenstein's, and potato media). To each of them were added one-half or 1 per cent vitamin A and D, vitamin D, and oil. The vitamin A and D in oil contained per gram: vitamin A, 45,000 units; and vitamin D, 5,600 units. The vitamin D in propylen glycol (a crystalline vitamin D_2) 10,000 units per gram. In each of these concentrations and of each of the three media 40 culture tubes were used with an equal number of untreated control culture media.

Result: Most striking was the complete absence of growth of tubercle bacilli on any of the media to which vitamin D in propylen glycol had been added. With vitamin A and D in the culture media, tubercle bacilli grew as in the unmedicated controls.

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2. The different vitamins were applied topically on tubercle bacilli cultures. Topical applications of vitamin D to well grown cultures of tubercle bacilli (vitamin D in oil, 10,000 or 1,100,000 units* or vitamin D in propylen glycol** 10,000 units per gram) were used and noted for macroscopical and microscopical changes. Sub-cultures were also carried out at various intervals.

Results: The topical application method can not be considered for exact quantitave determination. Macroscopical changes of the tubercle bacilli were noticeable, not immediately but in days (Fig. I). If vitamin D in oil was applied, the culture began to liquefy and to disappear in about four weeks. If vitamin D in propylen glycol was applied, the culture shrank and dried up also in weeks. Repeated applications of vitamins often facilitated these changes. Microscopically the tubercle bacilli appeared the same regardless of the vitamin D solution used. Most bacilli had disappeared and the few still visible were desiccated (Fig. II). Subcultures would not grow if taken after the culture changed macroscopically. Controls with propylen glycol or oil showed no changes. Vitamin A has no influence on the growth of tubercle bacilli, neither has propylen glycol or oil.

*Lederle Laboratories, Inc.
**Winthrop Chemical Co.

Figure 1: Macroscopic photograph of tubercle bacilli culture. Arrow indicates where vitamin D (Viosterol) was applied which shows lysis.

Clinical Experiences: Tuberculous empyema, complicating pneumothorax was treated in six patients, all of which were failures of conservative treatment (azochloramid lavages and aspirations) and too poor a risk for surgery. Similar cases have been added since.

Method of treatment: Vitamin D (viosterol 10,000 units per gram) 2 to 4 cc. were injected intrapleurally once a week. The chest fluid was aspirated if it increased in amount. A high potency viosterol (1,100,000 units per gram) was tried in a few cases, one patient receiving 1 cc. intrapleurally each week for 10 weeks, without ill effects.

Early results: The pus turned negative for tubercle bacilli in two to three weeks (with an occasional exception); leucocytes increased in the pus which became semi-purulent.

Late results: These were observed in the first six cases, five of which had been receiving weekly injections of vitamin D for 8 to 9 months. The sixth case had previously had a rib resection and closed drainage, then his general condition was too poor for further surgery. After receiving intrapleural vitamin D injections for three months, his general condition improved so that surgery could be performed.

All the five cases receiving vitamin D injections for 8 to 9 months have negative chest fluid now. One case turned negative after 8 months but his general condition is poor; he has progressive disease in the contralateral lung, his collapsed lung does not re-expand and he should be considered as a failure.

The most outstanding late result in the remaining four cases is that their collapsed lungs did re-expand. After the early conversion of the positive pus, all attempts to re-expand the lung

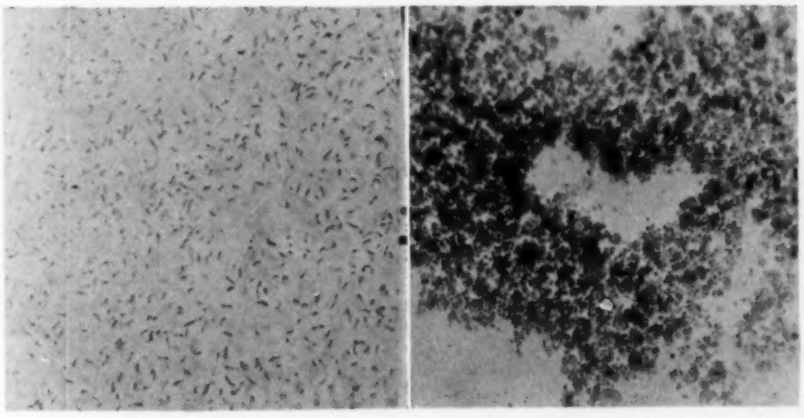

FIGURE 2-A FIGURE 2-B

2-B: topically vitamin D (viosterol) applied 5 days prior. Note few and desiccated tubercle bacilli.

failed. However, continuation of the vitamin D injection and infrequent aspirations brought about a spontaneous re-expansion which took six to nine months (Fig. III).

All four patients showed a marked gain in weight.

Mixed infected tuberculous empyema: The secondary microorganisms present were: proteus, B. aerogenes, staphylococci and streptococci (non-hemolytic). In all these cases the available chemotherapeutics had failed to control the secondary infection. Vitamin D injection intrapleurally cleared up first the secondary, then the tuberculous infection.

Pulmonary tuberculosis: To evaluate a chemotherapeutic in pulmonary tuberculosis, extensive clinical studies with suitable controls are necessary. No such evaluation is being attempted here. However, early observations and the route of administration are related. The hope is being expressed that further clinical trials will be reported as soon as feasible.

Method of application: The intravenous injection of vitamin D in propylen glycol was practiced. Doses of 100,000 to 200,000 units of vitamin D three times a week were given without any ill effects. The therapeutic dose of vitamin D has not yet been determined, but will be discussed below. Other routes of administration for instance, inhalation of vitamin D in propylen glycol may be worthwhile to be tried.

Results as to the effect of vitamin D intravenously on pulmonary

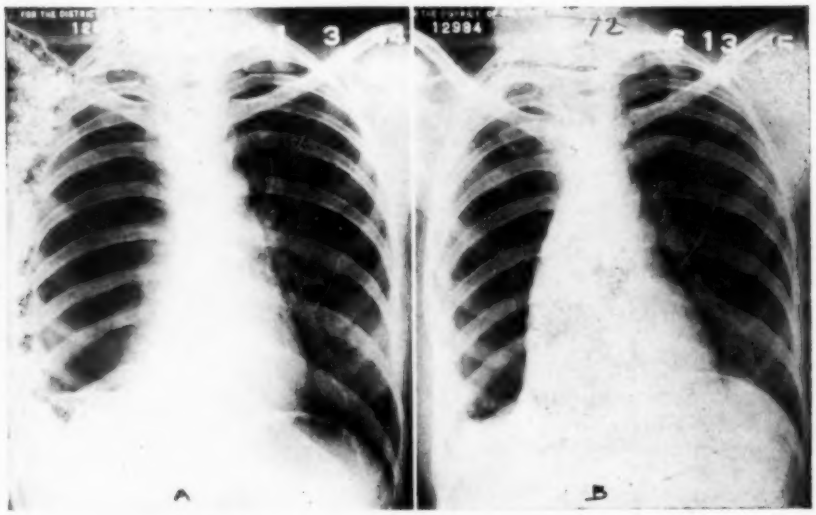

FIGURE 3-A FIGURE 3-B

Figure 3: Chest x-ray, tuberculous empyema (case 1).—3-A: all attempts to re-expand lung, including oxygen lavages were unsuccessful. Pus positive for tubercle bacilli on smear and culture.—*3-B:* six months after intra-pleural injections of vitamin D (weekly 40,000 units). Note spontaneous re-expansion of lung.

tuberculosis cannot yet be given. However, that the intravenous injection is safe should be of some encouragement.

The proper selection of suitable cases appears to be of importance as the early experiences indicated.

Other micro-organisms:

Laboratory methods: Plating (after suitably diluting the bacteria suspension) was carried out with addition of different strength of vitamin D (in propylen glycol). Plain agar and agar to which propylen glycol had been added were used as controls. Micro-organisms tested were proteus, B. aerogenes and staphylococci.

Results: Three per cent of vitamin D (in propylen glycol, 10,000 units per gram, i.e., 300 units per cc. of agar) inhibited the growth of B aerogenes and staphylococci. Slight inhibition was noted with propylen glycol. Proteus is only inhibited if an additional amount of vitamin (calciferol) D of 1,000 units is added to the original 500 units, per cc. of agar (Figure IV). Actinomyces bovis showed lysis in vitamin D in propylen glycol. This finding is under further investigation.

Discussion: The vitamin D used in this study was activated ergosterol. This form of vitamin D is best known to the chemist.[2] It is called Viosterol; crystallized it comprizes one form of vitamin D in pure state; this is calciferol or vitamin D_2. The parent substance or pro-vitamin, ergosterol is the characteristic sterol of fungi. It has the accepted sterol ring system, a phenathrene-cyclopentane complex, the same as in many of the sex hormones.[3]

The general accepted beneficial effect of cod liver oil in tuberculosis and its topical application in wounds[4] led me to investigate vitamin A and D. It was found that vitamin D is bactericidal. The

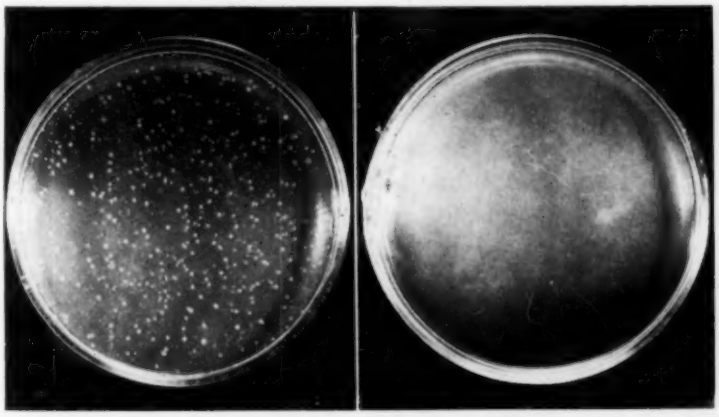

FIGURE 4-A FIGURE 4-B

Figure 4: Proteus vulgaris on agar plates.—4-A: untreated—control. *4-B:* medicated with 1,500 units vitamin D (in propylene glycol) per cc. of agar. Note inhibition of growth.

chemistry of vitamin D shows no relation to stilboestrol, the latter having bactericidal power which has been recently reported.[5] However, it would be worthwhile to study systematically in this respect the sterols.

Vitamin D is non-toxic in its pure state. The idea that vitamin D is toxic resulted from use of a product (vigantol) which proved to be a decomposition of the vitamin.[6] In arthritis and other diseases, large doses of vitamin D have been given (3,000,000 units or more daily). Certain symptoms appeared after several months of such medication believed to be due to overdose.[7] However, it may be that these are allergic reactions in sensitive patients, similar ones being caused by stilboesterol.[8,9] In our cases, 100,000 to 200,000 units of vitamin D (calciferol) were given intravenously without any ill effects.

It was shown that tubercle bacilli do not grow on media to which vitamin D in water soluble form, 50 units per cc. of the medium had been added. If vitamin A and D in oil was added, the results, with 50 units of vitamin D, regardless of the vitamin A content, were some growth. Several explanations could be given, the one forward here, is that the water solubility of a pure (crystallized) vitamin D has made the dissolving in the culture media more effective.

On topical application, vitamin D acts in days to weeks on the tubercle bacilli. The significance of this slow action can not be explained as yet.

In agar plates the inhibition of growth of proteus, B. aerogenes and staphylococci was noticeable in 24 hours, however, it is interesting to compare the amount of vitamin D necessary which was from six times (B. aerogenes and staphylococci) to 30 times (proteus) as much as tubercle bacilli in their culture media.

The therapeutic dose of vitamin D in pulmonary tuberculosis, and any other form of tuberculosis is not known. In culture media, 50 units per cc. inhibited the growth of tubercle bacilli. In empyemas, approximately the same amount of vitamin D (50 units) per cc. pus made the tubercle bacilli disappear. If 1 cc. of high potency viosterol (1,100,000 units per gram) or 2 to 4 cc. viosterol (10,000 units per gram) were injected intrapleurally, the results were the same as long as about 50 units per cc. pus were used. This would indicate that there exists a minimum and an optimum dose. The exact amount of the therapeutic dose in the pleura could not be measured as no vitamin assays were performed. However, if we assume that the therapeutic dose in the human body is 50 units vitamin D, we could figure out the amount needed for a person according to his weight. For instance, a 70 kg. patient would need 3,500,000 units or 87.5 mgm. vitamin D_2 crystals. Can

a level be obtained and maintained? Hyman[10] found that rabbits, after one dose of viosterol, stored the vitamin D in their organs and blood up to 12 weeks. Therefore, it may be quite possible that a therapeutic level of vitamin D can be established in human beings. The intravenous route was tried to see if pulmonary tuberculosis could be influenced thereby faster and more effectively. Results are to be reported later.

So far only bio-assays are possible to determine vitamin D content. The bactericidal power of vitamin D may prove practical for quantitative determination.

SUMMARY

Vitamin D, activated ergosterol, is bactericidal to tubercle bacilli, proteus, bacillus aerogenes, staphylococci and non-hemolytic streptococci in vitro and in vivo.

RESUMEN

La vitamina D, ergosterina activada, es bactericida para el bacilo de Koch, bacillus proteus, bacillus aerogenes, estafilococos y estreptococos no hemolíticos *in vitro* e *in vivo*.

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Obstructing Tuberculosis of the Main Bronchi
A Syndrome

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During the past decade the literature has been replete with contributions to the subject of tuberculosis of the bronchi and trachea. That this condition has been recognized for the past century is well known; but early reports on its existence were either to be found in postmortem reports or, less frequently, clinically as a terminal picture. Before the advent of present day concepts of adequate collapse therapy, the average patient with well established tuberculosis presented more varied and numerous reasons for not showing more satisfactory progress than he does today. Today, however, with the usual case more or less under control, there still remain in the clinical field an appreciable number of posers, and these sometimes persist as a challenge to the clinicians. The fact that these are becoming fewer in number bespeaks the encouraging progress in general tuberculosis therapy.

During an earlier period of diagnostic procedures, bronchoscopy in the field of tuberculosis was deemed to be a somewhat heroic and precarious maneuver by almost everyone familiar with the subject; even as recently as ten years ago it did not enjoy a very wide popularity. Its present day general acceptance has clarified many previously intangible diagnostic problems in tuberculosis. In the many sanatoria where this procedure is a matter of routine, it has come to be considered a safe procedure if performed by those with experience. It has been a most valuable means of clearing up many puzzling cases diagnostically and, to a less degree, therapeutically.

The incidence, pathology, treatment, and certain other aspects of tuberculous tracheobronchitis have been reported frequently in many excellent contributions throughout the literature and need not be reviewed or enumerated in detail in this one. In spite of this fact, it must be somewhat apparent to all that our general and specific knowledge on this subject has at times seemed to be incoherent as well as only slowly progressive. The gradual assimilation of data culled from the literature as well as personal experiences has led to a few rudimentary conclusions concerning

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obstructing tuberculosis of the main bronchi which might be expressed as a syndrome.

We may reasonably assume that patients in most sanatoria are receiving optimum therapy, even though its execution may show divergent methods and opinions. Among this group there are an appreciable number who have failed to show anticipated improvement in spite of employment of accepted measures. In this institution we feel that many of these should have a thorough investigation of the lower air passages, even though the referable symptoms be indefinite. Unexplained positive sputum, persistent sibilant wheeze, unexplained fever, or sputum unduly purulent or copious in amount seem to be the most outstanding signs suggestive of tuberculosis of the bronchial tree. To this may be added a lowered vital capacity which is not commensurate with the clinical and laboratory findings. Certainly we could not reasonably fasten a diagnosis of tuberculous bronchitis on every patient who shows one or several of these signs without further investigation, but they are nevertheless valuable clues in clearing up many cases diagnostically. The signs and symptoms alone are not always too characteristic, but their sequence and course are at times more valuable. Non-obstructing tuberculous bronchitis may never be able to push its own signs and symptoms past those of the advanced pulmonary disease, in which category this complication usually occurs. Postmortem reports give us ample evidence that this bronchial complication occurs far more frequently than we are able to detect by present available methods.

Tuberculosis is universally characterized by its protean forms, and every phthisiologist is well aware of the pitfalls entailed in the didactic mapping of its course or prognosis. The particular complication of obstructing tuberculosis of the main bronchi seems, however, to present a fairly definite pattern and sequence frequently enough so that a syndrome might be fabricated therefrom. It may be in order at this time to state that only a few years ago the complication of tuberculous bronchitis was first diagnosed by the endoscopist and only later by the clinician; today this order has been frequently reversed with the result that the clinicians are able to diagnose or strongly suspect a certain number of these cases themselves. I feel that this is due not only to the recognition of the aggregate signs and symptoms of this complication but to an important degree the recognition of the general pattern which they frequently assume.

Apparently severe bronchial disease has not been met with for a sufficiently adequate period of time to permit formulation of a practical classification of its various types. Its presence may be accounted for by the eruption or erosion of peribronchial glands

and by direct implantation; it is most likely that direct implantation is the more prevalent. In those few cases of severe bronchial tuberculosis occurring in patients with clear, or relatively clear, lung fields, the glandular etiology is probably dominant.

Any passageway in the human body which is acutely or chronically obstructed, from whatever cause, will have certain findings in common. Primarily, there is a disturbance of the physiology with the result that the substance which normally passed through becomes blocked and distal or proximal pathology occurs; secondly, the local disturbance is reflected as a generalized condition. This pattern is a well known entity in cases of urethral, intestinal, bile-duct, or lymphatic obstruction. That the fundamental principles which apply to the above could be applied to obstruction of the bronchi seems to be a reasonable assumption. The outline of the following syndrome has nothing to do with other types of tuberculosis of the smaller bronchi or non-obstructing tuberculosis of the larger ones.

SYNDROME

Prodromal Stage: Since tuberculosis of the bronchi and trachea occurs most frequently in the advanced stages of parenchymal pathology, its early presence may be concealed by one or more signs or symptoms of the attendant pulmonary disease. Should the subjective and objective chest findings show any sustained disparity, we should always consider tuberculosis of the bronchi as the predominant possibility. The absence of positive sputum need not rule out tuberculosis of the air passages any more than it should rule out the presence of pulmonary disease. During the very early stages of bronchial tuberculosis, failure to recognize its presence is not a reflection on the clinician.

Early Closure: As in other passageways of the body, the diameter of the normal airways is more than adequate. It is only when the decrease in size impinges on physiological needs that signs and symptoms first present themselves. The early closure is often accompanied by a persistent wheeze or other sibilant sounds more easily recognized than described. Suffice it to say that there is no one characteristic sound or tone which may be described as typical of this condition; its persistence, however, is of considerable import. Since the opening is becoming smaller than adequate, there will be slightly more difficulty in expelling the secretions; this situation is more pronounced when there is a collapse on the homolateral side. There may also be a variable amount of exudate present at the site of the lesion itself which may further burden the ability of the secretions to be expelled; if these be thick and stringy, they may contribute to the development of rhonchi. Early

closure may be largely due to the presence of edema; this may be relieved for a while by vasoconstrictive cough mixtures only to return following their withdrawal. Too much emphasis cannot be placed on the *persistence* of the early signs and symptoms in the diagnosis of this particular complication.

Granulation Formation (Soft obstruction): The formation of early granulations is rather rapid. They may be both fragile and friable and produce slight streaking. If the symptom of wheezing is present, it now may become more harsh and irregular in tone. The orifice, of course, becomes smaller at this time, and the symptoms progress. Should the diagnosis be made at this stage, the granulations may be periodically removed for better drainage of distal pulmonary disease. The secretions, however, can be expelled relatively easily past the soft granulations, and no temperature elevation may be noted. As long as the bronchial and pulmonary lesions are draining well there may be no elevation of temperature, even though either or both be extensive. I have felt that this stage represents the point after which local therapy in the form of chemical cautery is of little value.

Granulation-Edema: The granulation tissue in the air passageway is present but a short time when it invariably acts as a foreign body. This may produce an irritative cough or may exaggerate one which is already present. This foreign tissue also elicits a response locally in the form of edema. Thus, the obstruction becomes harder and more pronounced. At this stage the secretions are more difficult to expel, and some slight and rather uniform increase in temperature is to be expected. If a wheeze or rhonchi have been present up to this time, they may disappear. Clinical examination of the homolateral lung may at this time bear out the presence of early trapped secretions. Since the entire bronchial tree distal to the obstruction is to some extent bathed in these trapped secretions, we may note a variable amount of bronchogenic spread. Since the air exchange at this time is considerably altered, early atelectasis may also be noted. A lung which has rather extensive disease seems to be able to avoid bronchogenic spread and atelectasis somewhat better than one which is only slightly involved. This paradox is not easily explained other than by postulating that the former has developed more local immunity. A number of cases in this institution have shown this phenomenon.

The accepted requirements for bronchiectasis are gradually being fulfilled up to this stage; and if we were able to map out the entire bronchial tree, we could establish its early presence.

Induration (Hard obstruction): Tuberculosis of the soft tissues is characterized to some extent by the formation of fibrosis, if the disease is not too rapidly progressive. This tissue response

creates an exaggeration of the signs and symptoms as outlined for soft obstruction. Unfortunately many cases of bronchial tuberculosis are not discovered until this stage presents itself. The signs and symptoms now for the first time become clear-cut and the prognosis more unfavorable. The trapped secretions induce generalized toxic manifestations as evidenced by increased malaise and a moderately sustained temperature elevation. The patient may from time to time expel a copious amount of purulent material which is followed by a subsequent fall in temperature and apparent improvement in general well-being. This temporary situation disappears and the same pattern repeats itself, so that a careful temperature line may show many subsequent episodes of toxic elevations with short periods of regression.

The distal secretions may be seen bronchoscopically to be forced through the bronchial opening under pressure. This pressure, of course, exerts itself not only toward the bronchial opening but in all directions. Should this pressure persist for more than a few weeks, the lung tissue becomes irreparably damaged and will be of no practical physiological value to the patient. The roentgenograms do not always show the true picture of profound parenchymal damage which follows extensive bronchial obstruction.

Resolution: If the patient has survived the above stages, there now occurs a period during which the obstruction will subside to some degree. During the fulminating phase of obstructing bronchial disease, the submucosal tissues will have become involved extensively. The cartilaginous structures will either have become absorbed or partially destroyed by infection. These and other underlying structures will have become displaced by scar tissue. Cartilage has a poor blood supply and consequently a minimum of resistance; it does not regenerate and will not unite, once its continuity has been disrupted, except by fibrosis. During the period of resolution, the bronchial opening is either circumscribed by hard or soft scar tissue, and the opening becomes more or less patent.

Under the heading of therapy the literature mentions the advisability and feasibility of dilatation of stenosis of the main bronchi. Whether or not this can be satisfactorily accomplished remains a somewhat mooted question. If it can be done, its only practical application lies in draining the affected and useless lung and not in supplying air to a lung which is unable to utilize it. Since most patients with extensive parenchymal destruction have bacilli laden sputa, there are but few cases eligible for this procedure as the danger of perforating the delicate tissues is obviously great.

COMMENT AND SUMMARY

Patients who have had obstructing tuberculosis of the main bronchi are permanent pulmonary cripples. The pattern leading up to this status has been outlined as a syndrome. This condition and sequence undoubtedly occur in the smaller divisions of the bronchial tree. Since the parenchymal pathological changes occurring in these elicit a much smaller response, evidence of its presence may be blanketed by manifestations of already existing pulmonary disease. It is impossible for the very smallest branches to avoid involvement even in minimal tuberculosis. It would appear that the more proximal it becomes the more important and dangerous it becomes.

Obstructing tuberculosis of the main bronchi carries with it a very unfavorable prognosis in spite of whatever favorable clinical and laboratory findings may be present. Should the patient survive the above outlined sequence of events, the expected outlook for local or general recovery is indeed unfavorable. There are those who have seemed to belie this fact by surviving beyond their anticipated expectancy, but these are of the smallest percentage.

COMENTARIO Y RESUMEN

Los enfermos que han sufrido de tuberculosis obstructiva de los grandes bronquios son inválidos pulmonares permanentes. Se ha bosquejado el síndrome que conduce a este estado. Es indudable que esta condición y sus consecuencias ocurren en las divisiones menores del árbol bronquial. Como quiera que las alteraciones patológicas parenquimatosas que ocurren en estos casos producen reacciones mucho menores, la prueba de su presencia puede estar oscurecida por las manifestaciones de la neumopatía pre-existente. Es imposible que las más pequeñas ramificaciones puedan evitar la invasión aún en tuberculosis mínima. Parecería que la afección se vuelve más importante y peligrosa mientras más grandes son los bronquios hasta donde haya llegado la invasión.

La tuberculosis obstructiva de los grandes bronquios acarrea un pronóstico muy desfavorable a pesar de los hallazgos clínicos y de laboratorio favorables que puedan existir. Aún si el enfermo sobrevive a la serie de acontecimientos aquí bosquejados, las perspectivas de que tenga lugar la reposición local o general son muy escasas. Hay algunos enfermos que parecen desmentir este hecho pues sobreviven más allá de la expectativa anticipada, pero estos forman parte de una minoría muy pequeña.

Pulmonary Cavitation, Difficulty in Differential Diagnosis by X-Ray*

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The chest specialist or roentgenologist is often confronted with an x-ray film and asked to suggest a diagnosis with little or no knowledge of the clinical aspects of the case in question. The physician placing the question often justifies the boldness of the query with the explanation that the x-ray should be typical of this or that. This is considered especially true when cavitation is noted in the film presented since most cases of cavitation are found by the x-ray and would be missed if physical and clinical examination alone were at our disposal for diagnosis. The roentgenologist is being asked to assume an unfair burden.

The various publications, articles and books dealing with the differential diagnosis of cavitary lesions of the lung by x-ray have attempted to simplify the problem. In some cases the diseases are listed and their various characteristics then described. Sometimes the characteristics are listed and the diseases then inserted in their proper places. For example, location as a criterion would place tuberculosis predominently in the upper halves with bronchiectasis in the lower halves of the lung fields. Shape would be circular for abscess or tuberculous cavities, elongated for bronchiectasis, irregular for silico-tuberculosis, etc. Size, number of cavities, the character of the cavity wall and surrounding parenchyma are similarly categorized to aid in the differential diagnosis of these cavities by x-ray.

To facilitate my own reasoning in these cases, I prepared a chart (see chart I) cross-indexing the diseases and characteristics in cavitary disease. Cavitation was one of the most typical findings in chest diseases and should surely lend itself, very simply, to such a project. This worked out very well for the characteristic lesions. There was, however, one main serious fallacy in the entire undertaking. The lesions which I encountered in simple routine cases at the hospital seem to be, in a very great number of cases, not characteristic. Unfortunately, from a diagnostic viewpoint, they frequently deviated from the textbook pictures which were

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so conveniently placed near the text in the publications previously mentioned. The importance of the clinical aspects (history, physical examination, laboratory studies, and serial x-rays) of a case seemed to weigh much heavier in the balance as time went on. More frequently than not, the diagnosis could be made by history,

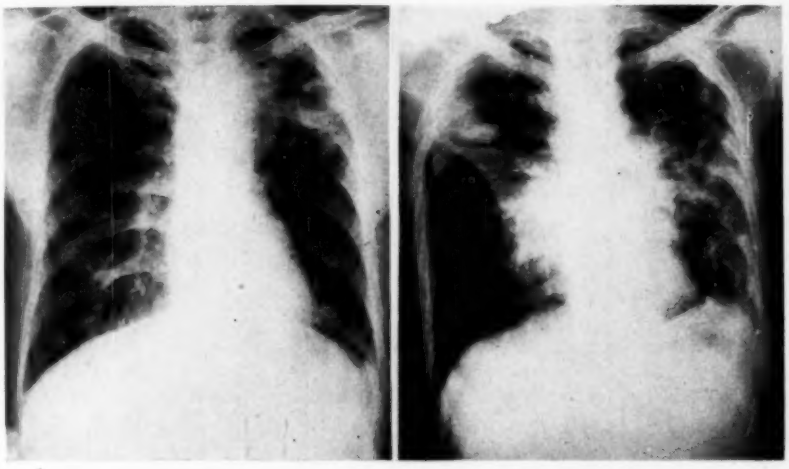

FIGURE I-A FIGURE I-B

Fig. I-A: Is that of a patient admitted to a general medical ward. He had to be transferred to a tuberculosis ward because of repeated positive sputa.—*Fig. I-B:* Is that of a patient admitted to a tuberculosis ward because of a film considered typical of that disease. He was transferred from that ward when bacterial studies indicated he was suffering from multiple lung abscesses. He responded well to a course of penicillin with closure of all his cavities, although some scarring remained.

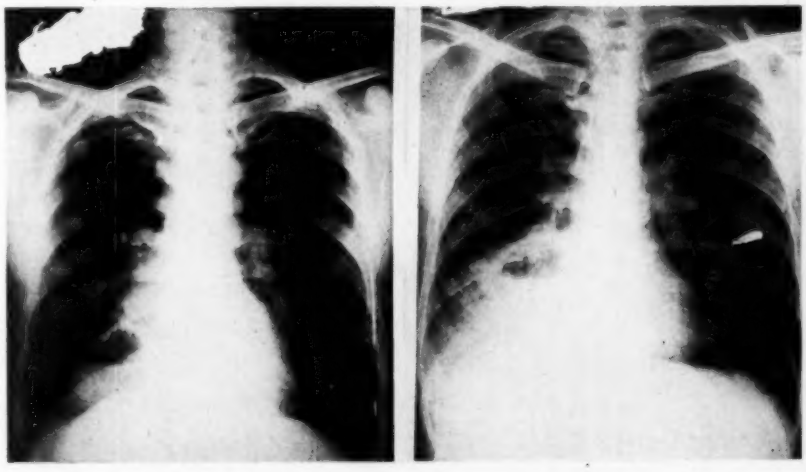

FIGURE II-A FIGURE II-B

Figs. II-A and II-B show basal cavitary lesions with surrounding areas of pneumonitis. Atelectasis, enlarged glands or typical masses were not present to aid in the differential diagnosis by x-ray. II-A proved to be a simple lung abscess whereas II-B proved to be a definite bronchogenic carcinoma.

TABLE I

Cause of Cavitation	*Anatomic Location*	*Shape*	*Size*
I Tuberculosis	Usually perpiheral zone, upper ½ of lung fields. Hilar and basalar lesions—more frequently in females and diabetics	Usually spherical. May be irregular, clover leaf; angular if adjacent to adherent pleura	Dime sized—to giant sized
II Bronchiectasis	Intermediate pulmonary field, usually basal	Elongated, lobulated irregular. Spherical especially when distended by check valve mechanism	1 to 15 cm.
III Abscess (a) Post friedlander pneumonia	Intermediate and peripheral pulmonary field	Irregular in early stage. Spherical in late stage	Usually 1 to 5 cm.
(b) Hematogenous type —septic pneumonia	Peripheral Zone	Same as (a)	Same as (a)
(c) Aspiration	Hilum and lower lobes	Same as (a)	2 to 10 cm.
(d) Post-Pneumonic	Varies	Same as (a)	Same as (c)
IV Bronchogenic carcinoma	Usually intermediate pulmonary field	Irregular or spherical	Small in relation to solid lung
V Silosis and silico tuberculosis	Intermediate pulmonary field, usually mid-lung zone	Often irregular	3 to 5 cm.
VI Infarct with breakdown	Intermediate pulmonary field. Infarcts radiate to periphery with base at periphery	Often irregular	3 to 5 cm.
VII Actinomycosis	Irregular	Irregular	Irregular
VIII Coccidioidomycosis	Frequently upper ½ of pulmonary field	Spherical	2 to 10 cm.
IX Echinococcus and (Blastomycosis)	Irregular	Spherical	2 to 10 cm.
X Cystic Disease	Irregular	Oval, angular and spherical	Small to giant size. Often entire lung
XI Emphysematous Bleb	Usually upper ½	Spherical, occasional angular	Small to giant size

TABLE I — Continued

Number	*Character of Pulmonary Parenchyma*	*Character of Cavity Wall*
Solitary in early stages Multiple in late stages	Fibrotic, nodular, calcific, or patchy infiltrations of tuberculosis frequently visible	Moderate thickness. Occasionally thin, especially in apical hematogenous type
Multiple	Frequently peri-bronchial infiltration and pneumonititis noted	Moderate thickness, especially in presence of pneumonitis
Multiple	Pseudo lobar involvement	Moderate early. Thin—late
Multiple	Patchy bronchopneumonia	Same as (a)
Usually solitary	Surrounding dense pneumonitis in early stage	Ragged—early. Thin—late
Usually solitary	Surrounding dense pneumonitis in early stage	Irregular—early. Thin—late
Usually solitary	Atalectasis. Infiltration. Hilar node enlargement	Thick
Usually solitary	Surrounding confluent patches with beading and nodulation	Thick
Usually solitary	Wedge shaped infarct with base peripherally	Thick
Visible cavity usually solitary. Occasional multiple	Marked irregular confluent infiltration	Thick
Usually solitary	Occasional surrounding patches	Thin
Usually solitary Occasional multiple	Negative	Regular smooth. Occasionally calcified
Multiple, solitary, and solitary with trabeculation	Negative	Thin unless infected
Usually only one visible	Emphysema frequent	Thin

clinical and laboratory findings without the x-ray rather than the reverse. This is not intended to minimize the importance of the x-ray, for it is indeed the most valuable diagnostic aid in diseases of the chest.

The causes of acquired cavitary lesions seem to vary when one notes the number of diseases in which cavitation occurs. Basically,

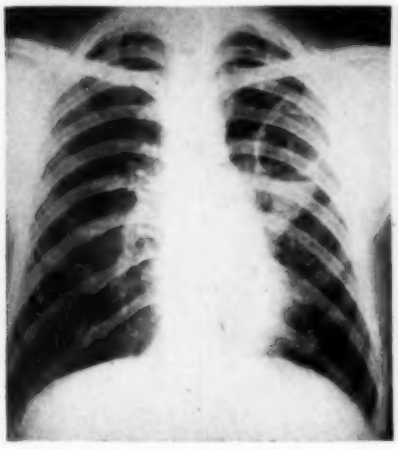

FIGURE III-A

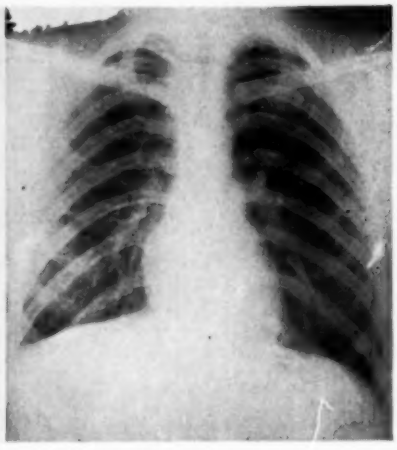

FIGURE III-B

Figs. III-A and III-B are two examples of cavitation in the upper lobe with no infiltration in the surrounding lung tissue to aid in differential diagnosis by x-ray. III-A proved to be coccidioidomycosis demonstrated by plain smear of sputa and animal inoculation. III-B proved to be tuberculosis with many positive sputa.

FIGURE IV-A

FIGURE IV-B

Figs. IV-A and IV-B are cases of large upper lobe cavities with surrounding consolidation. IV-A proved to be a lung abscess. (Recovered after surgery.) IV-B proved to be a lung cyst. All signs of inflammation in the second case disappeared in two days with no specific therapy. An air containing lung cyst remained. Review of the patient's old x-rays disclosed the same cyst was present in a film two years before.

however, the pathology in all cases is one and the same, namely destruction of the parenchyma with the resultant interruption of the normal pulmonary framework. Elastic retraction of the surrounding lung tissue, partial bronchial occlusion and marginal

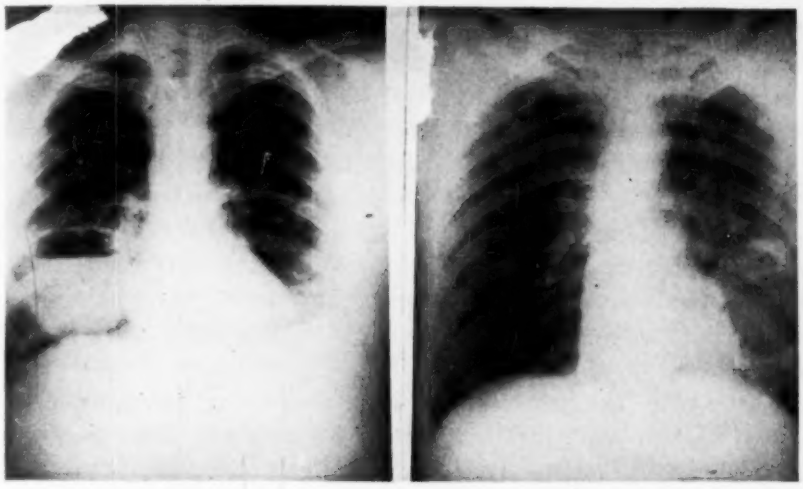

FIGURE V-A FIGURE V-B

Fig. V-A: Is a case of lung abscess proved by operation. Lung cyst had been considered as one of the possible diagnoses, because of its large circular shape and the lack of surrounding pneumonitis. The cavity in *V-B* disappeared and re-appeared several times within a period of hours as noted by repeated x-ray and fluoroscopic studies. Bronchogram revealed many bronchiectatic cavities in this area. This cavity was therefore assumed to be the result of distention of a bronchiectatic cavity by a check valve mechanism.—*Note:* The dividing line between congenital bronchiectasis and cystic disease is still debatable.

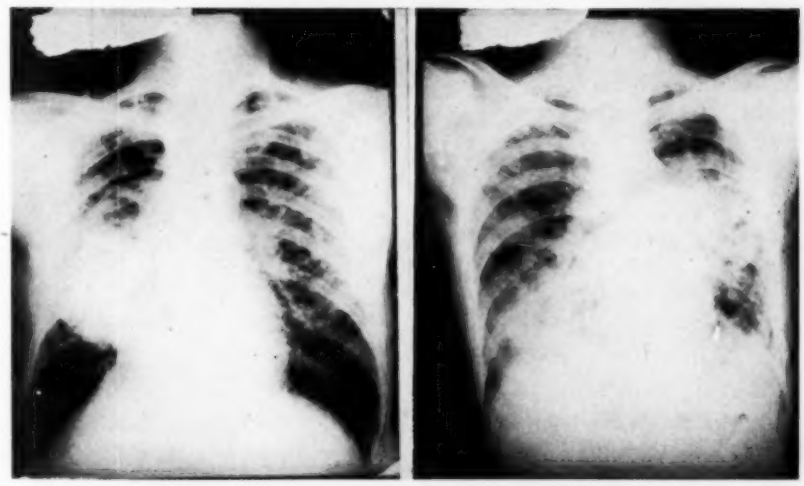

FIGURE VI-A FIGURE VI-B

Figs. VI-A and VI-B are two cases of cavitation with a marked degree of surrounding pulmonary infiltration of flocculent and fibrotic type. VI-A proved to be a case of silico-tuberculosis. VI-B proved to be a case of multiple lung abscesses which responded well to penicillin.

atelectasis of the surrounding alveolae result in the cavitary lesions noted. This was described and experimentally demonstrated by Moolten, who also showed how various shapes of the original destructive lesions resulted in varying shapes in the resulting cavities. Whether the necrotic focus in the pulmonary parenchyma is caused by bacteria and their toxins or disturbance in nourishment caused by foreign body storage (silicosis) or in rapidly growing tumors is inconsequential in that a cavity results in any case. This cavity is a high-light with or without a fluid level, on x-ray, and nothing more. The identification of the specific etiology of the destructive lesion becomes than a clinical problem rather than one for the x-ray man and that is where the proper emphasis should be placed. Should this concept be kept in mind, one will probably find fewer cases where non-tuberculous patients are sent to sanatoria and tuberculous patients sent to non-tuberculous wards.

To illustrate the problem, I have gathered cases which were noted in routine work at the hospital. Their x-ray films were placed side by side to illustrate how completely similar radiographs were caused by different etiologic agents, and were then distinguished from each other only by clinical means.

SUMMARY

Pulmonary cavitation is found during the course of many various illnesses affecting the lungs. Various text-books on Radiology

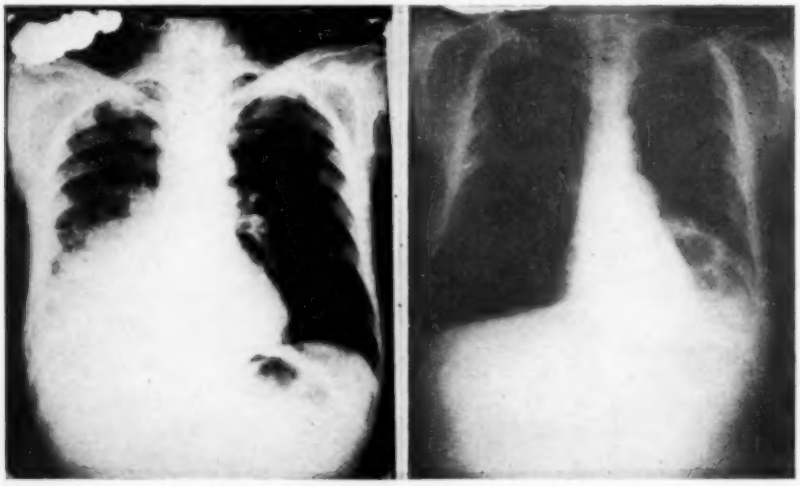

FIGURE VII-A FIGURE VII-B

Fig. VII-A had been on the cancer ward with the diagnosis of bronchogenic carcinoma. Clinical course and further investigation disclosed that it was a lung abscess. Healing of this abscess resulted in clearing of the surrounding consolidation, but some bronchiectatic changes.—*Fig. VII-B* was first considered as a lung abscess following a chronic pneumonia, but proved to be a bronchogenic carcinoma by bronchoscopic biopsy.

have attempted to describe typical lesions, using location, shape, size, number and character of the walls of the cavities as criteria. The character of the surrounding pulmonary parenchyma also aids in the differential diagnosis. A chart was made cross-indexing the causes of cavitation with these criteria for diagnosis. This chart proved helpful only in typical cases. Films are presented where similar radiographs were found in different diseases. The reason for this is that the basic cause for cavitation in all these illnesses is one and the same, namely destruction of the pulmonary parenchyma. Differential diagnosis in these cases was possible only by using all the available information, anamnesis, laboratory studies, clinical findings and serial x-rays.

CONCLUSIONS

1. Although acquired cavitary lesions are found in many different illnesses, the basic lesion is the same in all, namely a necrotic area in the pulmonary parenchyma.
2. The diagnosis of these cavitary lesions is most easily and certainly obtained by use of the x-ray.
3. Definite differential diagnosis of cavities by x-ray is possible only in the most typical cases.
4. Cavities and the surrounding lung tissue may give radiograms which closely resembles one an other in different illnesses.
5. Differential diagnosis of cavitary disease should be attempted only after all clinical findings, laboratory studies, anamnesis, and x-rays are available for study.

RESUMEN

Las cavernas pulmonares ocurren durante la evolución de muchas enfermedades diversas que afectan los pulmones. Varias obras de texto sobre Radiología han intentado describir las lesiones típicas, usando como pautas diagnósticas la ubicación, forma, tamaño, número, y carácter de las paredes de las cavernas. El carácter del parénquima pulmonar circundante también ayuda en el diagnóstico diferencial. Para facilitar el diagnóstico se hizo un cuadro en el que se cruzaron las causas de lesiones excavadas con las pautas diagnósticas. Este cuadro fue útil solamente en casos típicos. Se presentan placas que revelan radiografías semejantes en enfermedades diferentes. La razón de esto es que la causa fundamental de las lesiones excavadas en todas estas enfermedades es una misma, a saber: la destrucción del parénquima pulmonar. Sólo se pudo hacer el diagnóstico diferencial en estos casos mediante el empleo de todos los conocimientos disponibles: la anamnesia, los estudios de laboratorio, los hallazgos clínicos y las radiografías seriadas.

CONCLUSIONES

1. Aunque las lesiones cavitarias adquiridas ocurren en muchas enfermedades diferentes, la lesión fundamental en todas ellas es la misma, o sea una zona necrótica en el parénquima pulmonar.

2. En estas lesiones cavitarias se establece el diagnóstico con más facilidad y certeza mediante el empleo de la radiografía.

3. El diagnóstico diferencial bien definido de cavernas, por medio de la radiografía, solamente es posible en los casos más típicos.

4. Las cavernas y el tejido pulmonar circundante pueden producir radiografías muy semejantes en diferentes enfermedades.

5. Sólo debe intentarse el diagnóstico diferencial de afecciones cavitarias cuando se hallan disponibles para el estudio todos los hallazgos clínicos, los estudios de laboratorio, la anamnesia y las radiografías.

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Results of Thoracoplasty*

(933 Cases, 1,868 Operations)

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At the present time when there is a hope, if not promise, of a therapeutic agent which will out-mode our past methods of treatment, I believe it is well to review the accomplishments of our collapse therapy measures. Although thoracoplasty is a theoretically objectionable procedure, there has been little doubt expressed as to its actual value. It must, however, eventually be replaced by other methods of treatment or become unnecessary because of preventive measures. There is little doubt that future generations will find it difficult to understand how we could have used such apparently barbarious methods of treatment.

This review includes the cases I, myself, have operated upon at the Chicago Municipal Tuberculosis Sanitarium since being appointed Consulting Thoracic Surgeon in the middle of 1933. Table I shows the number of cases and number of operations. The peak volume was reached in 1941 when 255 operations were performed on 126 patients. There has been a drop in the last few years, partly because of war conditions limiting the medical and nursing personnel, but mostly because of the large number of unfavorable cases which were admitted during these years. The relative number of stages necessary has sharply decreased because, in my own work, I found it safe to complete a thoracoplasty with removal of five to eight ribs in a single stage in a certain percentage of cases. In 1944, seventy-four (74) cases were operated upon with only 114 stages.

These 933 cases represent 7.2 per cent of admissions during the same period. There have been many attempts to create some standard as to the number of various collapse procedures which should be performed in an institution, but the number must depend entirely upon the type of cases at hand. I have proceeded with the viewpoint that thoracoplasty should be applied so as to accomplish the most good.

High operative mortality or a large number of failures would lessen the morale of the patients and personnel, so the operation would only be accepted with reluctance. Even with best results, a

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*Read before the Meeting of the Mississippi Valley Trudeau Society, Chicago, Illinois, October, 1945.

**City of Chicago Municipal Tuberculosis Sanitarium.

TABLE I

NUMBER OF THORACOPLASTY CASES AND NUMBER OF OPERATIONS BY YEARS

Year	*Number of Thoracoplasties*	*Number of Operations*
1933	53	135
1934	47	111
1935	56	116
1936	69	151
1937	75	149
1938	79	162
1939	65	136
1940	110	221
1941	126	255
1942	74	149
1943	60	106
1944	74	114
1945 (to Sept. 1st)	45	63
TOTAL	933	1868

7.2 per cent of admissions.

TABLE II

CLASSIFICATION OF CASES

Diagnosis	*Number*
Moderately Advanced	54
Far Advanced	879
TOTAL (as of 10/4/45)	933

review of the thoracoplasty cases actually in the Sanitarium will not give a favorable picture because, inevitably, the cases who do not get well remain in the institution while those who obtain a good result leave. I have no doubt that, if consideration of the morale of the institution were not important, I would have performed more thoracoplasties.

Table II shows the classification of the cases as made by the Medical Department on admission; fifty-five (55) "moderately advanced," eight hundred and seventy-nine (879) "far advanced". Although we all realize that this classification is inadequate, nevertheless, it does reflect the fact that we are dealing largely with unfavorable cases.

TABLE III

CAUSES OF OPERATIVE DEATHS

Operative Deaths	*Number*
Pulmonary embolism	13
Tuberculous pneumonia	14
Wound infection	2
Atelectasis	6
Cardiac failure	2
Shock	2
Spontaneous pneumothorax	2
Uncertain	17
TOTAL	58

Table III classifies the operative deaths. There were fifty-seven (57) operative deaths. This represents a mortality of 6.4 per cent per case or 3 per cent per operation. Although experience has taught us to avoid early mistakes, the actual mortality rate has decreased but little, probably because we now approach patients in poor condition, many with bilateral disease and collapse measures in effect on the contralateral side. The operative mortality in the past five years has been 5 per cent per case. The principal cause of operative death was pulmonary embolism or thrombosis. Many were proven at autopsy, although in others diagnosis was made by a characteristic clinical picture. It is possible that occasionally one of these cases can now be saved with the use of new preparations, heparin and dicumoral.

Fourteen (14) died with a clinical picture interpreted to be "acute tuberculous pneumonia". Sulfonamides and penicillin available in the past few years have not affected these cases. In two (2) cases, wound infection eventually lead to death, and in six (6) atelectasis was considered to be an important factor. Two (2) deaths were due to cardiac failure, two (2) apparently to shock, and in two (2) spontaneous pneumothorax was contributory. In seventeen (17) the records do not give sufficient information to classify the cause of death.

Table IV classifies the nonoperative deaths. The overwhelming "non-operative" cause of death was progression of pulmonary tuberculosis, seventy-seven (77) cases. Seven (7) died from tuberculous meningitis. In nineteen (19) uncertain cases the probable cause of death was progression of pulmonary tuberculosis.

A recent review of eight hundred and eighty-eight (888) cases

TABLE IV

CAUSES OF NONOPERATIVE DEATHS

Nonoperative Deaths	*Number*
Progressive tuberculosis	85
Tuberculous meningitis	7
Influenza	1
Appendectomy	1
Suicide	1
Air embolism	1
Uncertain	19
TOTAL	115

TABLE V

RESULTS OF CASES OPERATED BEFORE JAN. 1, 1945

Present Status of Cases Operated before January 1, 1945	*Total Number*	*Per cent*
Apparently arrested	488	55.0 of all cases 64.0 of cases traced
Improved—negative	34	3.8
Improved—positive	55	6.2
Unimproved	16	1.8
Untraced Negative and in good condition when last seen	99	11.1
Untraced Positive and active when last seen	24	2.7
Operative deaths	57	6.4
Nonoperative deaths	115	13.0

operated upon before January 1st, 1945 (Table V) reveals the following:

Four hundred and eighty-eight (488) cases or 55 per cent of all cases were found to be "apparently arrested". This figure represents 64 per cent of cases that could be traced. It is only reasonable to assume that a large percentage of cases that were negative and in good condition when last seen are still well. This would make the percentage of successful results approximately 75 per cent. However, I can see objections to this assumption. Thirty-four (34) or 3.8 per cent of cases are "improved" and have negative sputums. Fifty-five (55) or 6.2 per cent are classified as "improved,"

but still positive. Some of these eventually will become converted, but more will probably eventually succumb to the disease. Sixteen (16) or 1.8 per cent are "unimproved," with poor prognosis. Ninety-nine (99) or 11.1 per cent could not be traced at this time, but were negative and in good condition when last seen. The principal reason for failure to locate these cases was that they had apparently left the city. Twenty-four (24) or 2.7 per cent were untraced, positive, and "active" cases when last seen.

CONCLUSION

The results of thoracoplasty are amazingly good when one takes into consideration the advanced stage of tuberculosis with which we are almost always dealing. Few surgical procedures are so dramatically successful in actually saving lives in large groups of cases. We may soon have a preparation, most promising at present being streptomycin, which will render thoracoplasty less frequently indicated. However, I believe that we have accomplished considerable with these weapons and that we should carry on without pause, until a proven replacement comes forth.

Figures of life and death are cold. A study of how these people are able to cope with the problems of the world should prove most interesting.

CONCLUSION

Los resultados de la toracoplastia son asombrosamente buenos cuando se toma en cuenta lo avanzado del período de la tuberculosis con el que casi siempre se trata. Pocos procedimientos quirúrgicos obtienen un éxito tan espectacular en salvar realmente vidas en grandes grupos de casos. Es posible que pronto tengamos una preparación—actualmente la más prometedora es la estreptomicina—que hará que la toracoplastia esté indicada con menos frecuencia. Sin embargo, soy de opinión que hemos alcanzado éxitos considerables con estas armas y que debemos continuar sin descanso hasta que aparezca un substituto probado.

Las cifras estadísticas de vidas y muertes pueden no tener significado. Un estudio de la manera como estas gentes pueden hacer frente a los problemas del mundo resultaría muy interesante.

Concurrence of Superior Pulmonary Sulcus Tumor and Pulmonary Tuberculosis

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The following is the second known instance[1] of the simultaneous occurrence of superior pulmonary sulcus tumor and pulmonary tuberculosis. In the case described by Fried[2] in 1935, the diagnosis of Pancoast's Syndrome was suspected clinically and the tumor found at autopsy. We were afforded the opportunity of observing our patient earlier in the course of his disease, to establish the diagnosis ante mortem, institute radiation therapy and subsequently to confirm the clinical finding at autopsy. The case is reported because of its rarity and its many interesting aspects from a chest and endoscopic standpoint.

REPORT OF CASE

C.J.O. was admitted to this hospital April 13, 1942. He complained of cough, loss of weight and abdominal pain. His prewar occupation was that of textile worker and he had served in World War I from June 2, 1917 to May 9, 1919. The family history was non-contributory. His father had died at the age of 43 of gangrene of the toes and his mother at the age of 50 of heart disease and of a stroke. One sister died at the age of 18 of peritonitis following appendicitis.

Tuberculosis was first discovered in 1918 at which time a rib resection was done. In 1921 he was considered an arrested case and there had been no signs or symptoms of activity since.

Symptoms which caused the patient to seek hospitalization were primarily gastro-intestinal. In 1940, following an episode of right lower quadrant abdominal pain, an appendectomy was done without relief. He stated that the pain radiated from the right side to the back and that "gas pains" occurred two or three hours after meals.

Physical examination disclosed a fairly well developed and nourished 49 year old white male who did not appear acutely ill. He weighed 126 pounds aganist his usual weight of 145 and was 67 inches tall. Pupils reacted promptly to light and accommodation. There was no ptosis, miosis, enophthalmos or anhydrosis. The pharynx was clear. Chest examination revealed increased fremitus at the right apex, mild dullness and cavernous breath sounds below the clavicle and above the third dorsal spine. No rales were heard and the left lung was entirely clear. The heart showed no abnormalities. There was slight tenderness in the mid-epigastrium and no abdominal masses were palpable. No enlarged lymph nodes were present. Because of the persistent abdominal complaints for which no organic basis could be found, a complete neuropsychiatric examination was done February 6, 1943. There were no

*The Veterans Administration accepts no responsibility for opinions expressed by the author.

abnormal findings noted and the diagnosis was "No Neuropsychiatric Disease Found". Special Eye, Ear, Nose and Throat examination revealed only a refractive error.

Fever was of an irregular, low-grade type up to 99.8 degrees F, orally. The patient gained a great deal of weight and upon discharge February 10, 1943 weighed 167 pounds. He looked clinically very well and could easily be described as robust.

Complement fixation and precipitation tests for syphilis were negative. Eleven consecutive sputum tests for acid fast bacilli were negative, beginning April 12, 1942. Gastric analysis 4/14/42 revealed total acidity 35, free HCl 24, and combined HCl 11. RBC 4.30 M, Hgb. 87%, WBC 11,200, P61, L34, Monos 3, Eos 2.

X-ray of the chest 4/21/42 revealed parenchymal infiltration in the right upper lobe and a small area of decreased density at the right apex suggesting a cavity. There was questionable slight infiltration in the first interspace on the left. X-ray 1/7/43 revealed no change.

Rapid emptying of the duodenal cap was evident on gastro-intestinal series. There were no other abnormalities. Gall bladder x-ray showed no stones and a normal outline of this viscus.

Because of the low grade fever and the suggestion of cavitation on x-ray with persistently negative sputa, bronchoscopy was decided upon after consideration by the collapse board and was done 5/8/42. The bronchial tree was carefully examined by the writer and showed no abnormalities other than a small amount of mucoid sputum issuing from the right upper lobe orifice. There were no masses, no ulcerations and no areas of stenosis. The sputum noted was aspirated and on direct smear was plainly positive for acid fast bacilli. This finding confirmed beyond a doubt the presence of activity. Subsequent sputa, not bronchoscopically obtained, were persistently negative. Concentrates on May 26, 27, 28, 29 and 30, 1942 were all negative. Single specimens on 10/23/42 and 12/18/42 were also negative.

Pneumothorax was attempted but was unsuccessful and thoracoplasty was refused. Discharge was accomplished, Maximum Hospital Benefit on 2/10/43.

The veteran returned to this hospital January 22, 1944 with the same complaints as had previously been noted. In addition, he described "sharp pain on the left side in the region of the heart radiating down the left arm like a toothache". It had its onset several days prior to admission. He appeared chronically ill, his weight had fallen to 120 pounds and he described occasional blood streaked sputum. His pain was related neither to effort nor to food intake. Chest examination revealed dullness, broncho-vesicular breath sounds and medium moist rales at both apices. Examination of the heart showed no abnormalities and the electrocardiogram was within normal limits. The admission diagnosis was "Tuberculosis, Pulmonary, Chronic, Far Advanced, Active III," and it was felt that bronchogenic spread had occurred to involve the left apex as well as the right.

Sputum for acid fast bacilli was again negative, eleven specimens being examined from January 24 to February 3, 1944. RBC 4.96M, Hgb. 92%, WBC 23 900, P 77, L 20, Eos 3. Sedimentation rate 28 mm. in 60 minutes. Vital Capacity 2.2, (normal 3.7). Urine specific gravity 1.008, sugar 0, albumin 0. Complement fixation and precipitation tests for syphilis were negative. Gastro-intestinal series was repeated and again showed no abnormalities.

Report of chest x-ray 1/25/44 was as follows: "Bones negative. Both diaphragms showed adhesions, costophrenic angles clear. Trachea and heart negative. The upper lobe bronchi, both right and left, are heavier than normal. In the first interspace on the left, they are obscured by increased density which extends from the second rib to the apex. In the apex and third interspace on the right, the linear markings reach well out, possibly come to the surface. There is a small area of decreased density in the right apex suggesting the possibility of a cavity. Right main bronchus is heavy with some matting and studding along its course.

Summary: Fibrosis, all lobes on the right, upper left.
Parenchymal infiltration both uppers, suggestion of small cavity right upper.
Pleurisy, both chests.

Compared with the film dated 1/7/43, there is considerable increase in the density over the apex and first interspace on the left."

Following consideration by the collapse board, bronchoscopy was again done on 2/18/44. Particular attention was paid to the left upper lobe orifice which showed only slight thickening. There were no masses, no ulcerations and sputum was subsequently reported negative for acid fast bacilli on direct smear. No significance would ordinarily have been attached to the slight thickening about the left upper lobe orifice in a patient with known pulmonary tuberculosis. The patient had, however, lost ground rapidly and examination of the x-ray revealed a homogeneity of the shadow in the left upper lobe not ordinarily found in tuberculosis. The pain down the left arm was also neuritic in character and obviously not of cardiac origin. The possibility of superior pulmonary sulcus tumor on the left, therefore, suggested itself. Careful examination was made for the presence of Horner's Syndrome but none was found until 2/22/44 when the patient complained of sudden onset of difficulty in opening his left eye. The left palpebral fissure was noted to be slightly narrowed as compared with the right. Ptosis, miosis and enophthalmos, although slight, were definite. Anhydrosis was now apparent. This development eliminated all reasonable doubt as to the nature of the process in the left upper lobe and arrangements were made for transfer to a tumor clinic. While awaiting transfer, the eye changes were noted daily to become more marked. The left palpebral fissure ultimately narrowed to one-half the size of the right and anhydrosis became marked. Fever did not rise above 99.8. The patient was transferred to the Veterans Hospital at Los Angeles, on 3/10/44.

He was there considered by the Tumor Board and the diagnosis of Primary Carcinoma, of the Left Lung with Pancoast's Syndrome was confirmed. Three series of deep x-ray exposures were given. This included 3000 R U from March 25 to April 14, 1944, 2000 R U from April 19 to April 29, 1944 and 2000 R U from June 6 to June 17, 1944. Response was poor. The patient retrogressed generally and pain down the left arm increased. Sputum remained negative for acid fast becilli. It was felt that further treatment would be of no avail and on July 3, 1944 he was readmitted for the last time to the Tucson hospital.

His general condition was poor. He appeared cachectic, in obvious pain and his weight was estimated at 105 pounds. Atrophy of the muscles of the left arm and forearm was now evident and Horner's Syndrome was marked. There was clinically no evidence of distant metastatic involvement. Cervical and axillary nodes, liver and spleen

were not palpable. Complement fixation and precipitation tests for syphilis remained negative as was another series of eleven sputa for acid fast bacilli. RBC 3.4M, Hgb. 70%, WBC 19,200. P 82, L 16, Monos 2. Sedimentation rate 30 mm. in 60 minutes.

The course was a rapidly down-hill one. Paravertebral block in an attempt to relieve pain was of no avail. More extensive surgery was contraindicated by the patient's condition. A great deal of sedation was required. Death occurred August 1, 1944.

Abnormal findings at post mortem examination were limited to the chest. The body was that of a cachectic middle aged, white male weighing about 100 pounds. Fatty subcutaneous tissue was absent. An oval mass 2 x 3 inches was seen to occupy the apex of the left lung. Its cut surface was glistening, gray and hard. There was beginning necrosis in its center. The remainder of the left lung showed mild fibrosis. The tumorous mass was firmly adherent to the chest wall at the apex and had invaded this area in all directions. The brachial plexus, sympathetic trunk, vertebral column and posterior surfaces of the upper ribs had been eroded. The right lung showed numerous small cavities in its upper lobe and the remainder of the lung was atelectatic. The heart was normal and the mediastinal glands were not involved. The pathological diagnoses were: Primary Superior Pulmonary Sulcus Tumor, Left, and Tuberculosis, Pulmonary, Chronic, with Cavitation and Atelectasis, Right Lung.

COMMENT

This was a long standing case of pulmonary tuberculosis, arrested since 1921, twenty-one years prior to his first admission to this hospital. On this occasion, despite suspicious clinical and x-ray evidence of recurrence of an active process, casual sputa and numerous concentrates were persistently negative. The first and only positive sputum was bronchoscopically obtained and decided the question of activity. The veteran improved remarkably, gained weight on the usual sanatorium regime and remained out of the hospital for eleven months following his discharge in February of 1943. Upon his readmission in January of 1944, it was evident that he was failing rapidly and the general picture was not inconsistent with acute bronchogenic spread of his pulmonary tuberculosis. The x-ray shadow in the left upper lobe, however, was too homogeneous, the pain radiating down the left arm was of a severe, neuritic type not accounted for by heart disease, and bronchoscopy revealed suspicious thickening about the left upper lobe orifice. After a period of observation it became evident that cachexia was also out of proportion to the pulmonary pathology on the basis of tuberculosis. With the development of a Claude Bernard-Horner Syndrome the diagnosis was no longer in doubt. The time from the onset of symptoms referable to the superior pulmonary sulcus tumor until death was approximately seven months.

GENERAL COMMENT AND SUMMARY

In 1924, Pancoast[3] reported what he then regarded as a new type of intra-thoracic tumor. It was located at the thoracic inlet, and was characterized by neuritic pain about the shoulder and down the arm, atrophy of the muscles of the hand, Horner's Syndrome, a homogeneous x-ray shadow at the apex of the lung and sometimes local destruction of the vertebrae and ribs. Ht at that time reported three cases and in 1932 added four more.[4] In the latter report, he made the statement that "Horner's Syndrome was noted in every case and is an essential manifestation."

Pancoast felt that the tumor originated from an embryonic remnant of the fifth branchial pouch. It soon became evident, however, that what had been described was a syndrome rather than a specific clinical entity.[5] Browder and DeVeer[6] felt that any tumor in the region of the pulmonary apex and upper mediastinum could produce the symptoms and signs described. They reported three primary carcinomas of the lung, a metastatic hypernephroma, and a tumor of the thymus, all giving the same syndrome. This was corroborated by Jacox,[7] Sterner and Byron[8] and others.[9] Boyd[10] thus succinctly summarized the situation:

> "Superior Sulcus Tumor . . . is a new term which has recently appeared in the literature. The condition is characterized by pain about the shoulder and down the arm, Horner's Syndrome, local destruction of the first, second or third ribs and atrophy of the muscles of the hand. In the roentgen-ray picture there is a small homogeneous shadow at the extreme apex. Pancoast, who first described the condition from the standpoint of the radiologist thought that the tumor did not arise from the lungs, pleura or ribs, and, therefore, gave it its non-committal name. The few autopsies which have been done seem to suggest that the tumor is a bronchogenic carcinoma growing from the apex of the lung."

It will be recalled that in our case, thickening of the bronchial wall was noted on bronchoscopy and that beginning necrosis in the central portion of the tumor within the apical portion of the lung was noted at autopsy. The newer portions of the malignancy were at the periphery invading the surrounding structures. Microscopic examination which was unfortunately not done might have thrown more light upon the origin and nature of the tumor. We are not, however, interested so much in Pancoast's Syndrome per se as we are in its association with pulmonary tuberculosis in the same patient.

The co-existence of two major disease entities is commented on by Fried (ibid.) in the first paragraph of his paper, in which he reports thirteen cases of tuberculosis combined with carcinoma

of the lung, only one being of the Pancoast type. He points out that clinicians at one time seldom recognized the possibility of the co-existence of two major diseases in one individual. Even the association of diabetes and tuberculosis, diabetes and cancer, and two or more cancers was overlooked. Today these conditions are considered by no means rare. The concurrence of tuberculosis and cancer was regarded as improbable as recently as 1929.[11] Later not only did clinical observation demonstrate that such concurrence is possible but it has also been reproduced in animals.[12]

Our interest in Pancoast's Syndrome arises from its association with an apical lung tumor. It may thus of itself in its early stages mimic tuberculosis. In a known tuberculous patient where such a tumor is super-imposed, the difficulty in diagnosis is readily apparent. Fortunately, it does not occur frequently.

The symptomatology, in addition to that associated with pulmonary tuberculosis, is peculiar to the location of the neoplasm. It is situated at the apex of the chest where the thoracic cage narrows sharply and the lung takes on a pyramidal shape, the apex protruding for a short distance into the base of the neck. This aperture is bounded by the first rib, the superior mediastinum and the first thoracic vertebra. The eighth cervical and first thoracic nerves leading to the brachial plexus and the subclavian artery and vein arch over the pleura and the remaining nerves leading to the brachial plexus are in close relation to this portion of the pleura. Anterior to the heads of the upper ribs on the surface of the bodies of the vertebrae lies the thoracic portion of the chain of sympathetic ganglia. In addition to these structures the trachea, esophagus, great vessels, phrenic and recurrent laryngeal nerves are also present. This is a crowded area and it does not require a very large tumor to produce widespread symptoms.

Pain due to irritation of the nerves leading to the brachial plexus is outstanding. This generally begins in the shoulder although it may be located in the upper anterior chest, axilla or along the arm. The pain is constant or paroxysmal and in the early stages may not radiate. Localized scapular pain is of particular importance because it generally arises from irritation of the parietal pleura rather than from direct invasion of the thoracic nerves. Fibres from intercostal nerves supply the parietal pleura and they have a corresponding surface segmental distribution in accordance with the zones of Head. Pain may, therefore, occur while the process is still well localized.

As the disease progresses, pain becomes more severe ultimately requiring opiates. As a protective measure the patient tilts the head toward the involved side and tends to keep the arm in an attitude of flexion and adduction close against the chest. The pain spreads to involve successive areas of the shoulder, arm and

anterior chest, and if the cervical plexus is attacked, extends to the side of the neck, jaw and post-auricular area. Parasthesias and hyperesthesias are noted and in many cases muscle atrophy and paralysis of the extremity. Weakness in the hand and in the fine motions of the fingers is an early manifestation in some patients. Atrophy as in our case involves first the small muscles of the hand, the hypothenar and interosseous muscles being most frequently attacked.

Symptoms due to invasion of the sympathetic chain are manifested in Horner's Syndrome. In our case ptosis, miosis, enophthalmos, anhydrosis and flushing made their appearance all at one time while under our observation. This was an indication of sympathetic paralysis. It is conceivable where growth is slow that signs of irritation may precede those of paralysis. Mydriasis rather than miosis and increased sweating rather than anhydrosis are possible at this point. Symptoms referable to cord compression, intracranial metastases, phrenic and laryngeal nerve palsy are not often seen. Changes in the pulse and lowered blood pressure on the involved side due to pressure on the subclavian artery are possible. Weakness may be an early complaint and loss of weight may or may not be noted at the onset. Cough, hemoptysis and clubbing of the fingers are infrequent manifestations.

The differential diagnosis is ordinarily from tuberculosis since acid-fast infection can, as previously mentioned, reproduce all the signs and symptoms of a neoplasm. Other conditions are metastatic tumors, cord tumors, brachial neuritis, cervical rib, arthritis, myositis and bursitis of the shoulder, arthritis of the spine and coronary heart disease with angina pectoris.

The results of treatment in the later stages is not encouraging. Radiation therapy is at best only palliative. Surgery in the very early stages would conceivably offer the patient his only hope. The most important aspect of treatment is, therefore, early recognition. In the pre-invasive state persistent loss of weight and strength out of proportion to that anticipated from the tuberculous process is sometimes a guide to the presence of malignancy. Where this is associated with pain, a homogeneous x-ray shadow and endobronchial changes no matter how slight, the possibility of tumor should be considered. It is evident that our patient came to us when symptoms of invasion had already occurred. The neuritic shoulder and arm pain indicated involvement of the brachial plexus. Operation would have for this reason alone been ineffective except as a palliative measure. In addition, the tuberculous process in the opposite lung would have had to be brought under control. This was also a factor in the rapid down-hill course.

The usual survival period from the onset of pain is from one-half to two years. Operation is resorted to in order to relieve pain

and on the basis of the possible existence of a tumor which is still completely removable. It is assumed that the patient's condition will withstand surgery. Chordotomy and multiple root section have been resorted to in order to alleviate pain. Ray[9] reports 100 per cent mortality for this type of malignant neoplasm. This, however, should act as an incentive rather than a deterrent to early diagnosis and, where possible, active treatment, for it is only by early recognition that we can hope to achieve a more optimistic outlook. The presence of tuberculosis is not an insurmountable obstacle to the establishment of an accurate diagnosis.

CONCLUSIONS

1. A case of known active pulmonary tuberculosis with superimposition of Pancoast's Syndrome is presented and the bronchoscopic findings described.

2. The presence of pulmonary tuberculosis does not preclude the possibility of the development of malignancy.

3. The most important aspect of effective treatment is early recognition.

CONCLUSIONES

1. Se presenta un caso conocido de tuberculosis pulmonar activa con superposición del Síndrome de Pancoast y se describen los hallazgos broncoscópicos.

2. La presencia de tuberculosis pulmonar no excluye la posibilidad del desarrollo de malignidad.

3. El aspecto más importante del tratamiento eficaz es el diagnóstico precoz.

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Non-Coagulating Intrapleural Hemorrhage Following Damage to Intercostal Vessels

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During the course of a pneumothorax refill it is almost certain that either the pneumothorax needle or the infiltration needle will pass very close to the intercostal vessels and may cause very serious damage to them. Because the vessels are closer to the parietal pleura, than they are to the surface of the chest wall, it is probable that any hemorrhage as a result of this damage will tend to make its way into the pleural space. In some instances this blood will coagulate. In the majority of the cases it may be withdrawn, several days following the hemorrhage, in a fluid state.

REPORT OF A CASE

This patient was admitted to the Sanatorium on July 28, 1937 with a diagnosis of minimal pulmonary tuberculosis and with a favorable prognosis. Sputum was positive for tubercle bacilli: Gaffky iii. The pulmonary infection gradually increased in spite of strict bed rest and repeated phrenic nerve operations. In December 1939 pneumothorax was instituted on the left side. The lung was free. There was still disease at the apex on the right side. The diaphragm was permanently paralyzed on that side. Because the sputum was still positive and the disease on the right appeared still active, pneumothorax was attempted on that side. No free pleural space was found. Thoracoplasty was advised and three stages were performed, the last being 6/11/40. The sputum was consistently negative following that. The patient continued to carry the pneumothorax on the left with approximately 40 per cent collapse. Refills were of about 300 cc. at weekly intervals. A routine refill was given on 3/27/41, consisting of 200 cc. of air. The pressures were within the usual range. The same evening the patient complained somewhat of dyspnoea and had a slight elevation of temperature. On 3/28/41 the temperature was elevated to 98.8. There was slightly more dyspnoea and a general feeling of malaise. Fluoroscopic examination showed a fluid level covering the diaphragm. It was thought that this was due to a pleural effusion. Three hundred cc. of air were removed and the patient felt much more comfortable. In the evening the temperature was 100.2. On 3/29/41 there was still some dyspnoea and fluoroscopic examination showed a further rise in the fluid level. One hundred cc. of air and 400 cc. of fluid with a gross appearance of blood were removed. This made the patient much more comfortable. Temperature was essentially normal on March 30th and fluoroscopic examination did not reveal any appreciable increase of the fluid in the pleural space. Examination

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on 3/31/41 showed a further marked increase in the pleural fluid, with dyspnoea and a morning temperature of 99.4. One thousand seven hundred cc. of fluid closely resembling whole blood was aspirated and the pleural space was washed with 200 cc. of normal saline. A blood count was run on the patient with the following findings: hemoglobin 13.5 gms., R.B.C. 3,670,000. A count was likewise run on the blood aspirated from the pleural space at the same time. The results were, hemoglobin 13.5 gms. and R.B.C. 4,160,000. These figures indicate that the fluid in the pleural space was blood that had entered as a result of hemorrhage. It had not been diluted with a pre-existing pleural effusion (none had been present) and it is very improbable that there was an associated effusion. The aspiration of the 1700 cc. of blood, together with the irrigation with normal saline solution, afforded marked relief. No further treatment was given until 4/8/41, at which time 275 cc. of fluid, blood-tinged, was aspirated and the pleural cavity was washed with 200 cc. of normal saline solution. There was no fluid formation following that.

There has been no thickening of the pleura, either parietal or visceral that is detectable on the x-ray films. There has been no fibrin body in the pleural space. This patient's general condition has remained good. In spite of a marked collapse by pneumothorax on the left and a seven rib thoracoplasty, he is able to work at the watchmaking trade and earn his own living.

DISCUSSION

No attempt was made to determine the source of the massive hemorrhage. It is however, probable that it resulted from damage to either the intercostal vein or artery by the pneumothorax needle. Care must be used in the selection of needles to be sure that they do not have a sharp cutting edge or if they are resharpened that the edges are smooth.

It is possible that the fibrinogen present in the blood could have been removed by the churning action of the heart and respiration. It must be remembered, however, that this individual remained very quiet, on his back all of the time. It seems improbable that there could have been sufficient agitation to have removed the fibrinogen. There was no appreciable thickening of any of the pleural surfaces and no fibrin body present in the pleural space, that would have indicated the removal of this clotting substance from the blood. It is regrettable that a coagulation time was not run on the fluid that was aspirated from the pleural space.

CONCLUSIONS

It is true that no general conclusions can be drawn from one isolated case, however, this blood remained in the pleural space for a period of four days. There was no appreciable fibrin formation as would be expected with about 2100 cc. of blood, if the removal of the fibrinogen is to account for the lack of clotting. It

is possible for extravasated blood to remain in the pleural space without clotting. It would seem reasonable to assume that removal of fibrinogen cannot be responsible for the failure of the blood to clot in this case.

CONCLUSIONES

Es cierto que no se pueden sacar conclusiones generales tomando por base un caso aislado; sin embargo, la sangre permaneció en el espacio pleural por un período de cuatro días. No tuvo lugar formación apreciable de fibrina como era de esperarse con unos 2100 cc. de sangre, si la extracción de la substancia fibrinógena ha de explicar la falta de coagulación. Es posible que sangre extravasada permanezca en el espacio pleural sin coagularse. Parece ser razonable el dar por sentado que la extracción de la substancia fibrinógena no sea la causa de que la sangre no se coagulara en este caso.

Role of the Tuberculosis Sanatorium in the Community

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We are all aware of the fact that styles change in clothes, but we are less cognizant of the fact that there are also trends in the practice of medicine.

In the early days of sanatorium cure the aim was to secure isolation of the institution and the patient. This was the cause of a necessary evil—the separation of the physician from general everyday medical affairs and almost a complete loss of contact with the medical men of the community. The smaller the community, the more complete the isolation, in spite of the fact that in the smaller hospitals and communities co-operation could result in greater mutual benefits.

The tuberculosis sanatorium and its one- or two-man staff needs the help of the medical society and it needs the help of specialists in other fields of medicine for the purpose of consultation work. This should be real rather than theoretical; many hospitals have consultation staffs but the men are not called with sufficient frequency. The isolated sanatorium physician also needs his medical brethren to keep him from falling into a medical rut. The man who continues to make his own decisions year after year without suffering contradiction tends to forget that there is frequently more than one answer to a medical problem. If he has no contact with the general hospital in the community, he also begins to forget that there are other diseases than tuberculosis. The discussion of cases and medical problems is as necessary to the maintenance of an alert and intelligent medical viewpoint as is water to the growth of a plant.

The sanatorium physician should "advertise" himself and his institution to the general practitioner as well as to the general public. Recently a layman in the county was heard to express surprise on learning that a patient had been discharged as well; he thought everyone died "up there". When asked to explain, he remarked that only the death notices referred to patients, and never had he seen anything in the paper about persons being sent home cured. Outside of friends or relatives of patients, very

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few people have the opportunity to learn about the institution. Occasions will frequently develop for "statements to the press" concerning such topics as clinics, industrial surveys and other projects related to the hospital. Such "advertising" pays dividends in larger clinics, better co-operation and a fuller appreciation by the public of hospital problems and needs. The hospital has a service to offer to the community; why shouldn't all of the people be informed of the fact? Hospital activities are interesting subject matter to the lay public and the reading thereof serves as a frequent reminder of the institution and of tuberculosis which it treats.

The co-operation of the local physician must be obtained by different means but he, too, should frequently be reminded of the hospital and its services. In that way the possibility of tuberculosis as a diagnosis will more frequently occur to him when he is confronted with a chronic cough or similar condition. Perhaps he can even be convinced of the value of a routine chest x-ray on all of his patients, whether or not the presenting symptom is referable to the chest.

Reports to the physician should be prompt, while the patient is still coming to the office. A "cold" case is frequently a lost one. Reports, too, should be in the form of a direct letter rather than a printed form and they should offer definite and specific advice, for that is what the physician is seeking.

The clinic depends largely upon the neighborhood doctor and every effort should be made to win his confidence and co-operation. A miniature copy of "positive" films requires some extra work and may cost a few dollars during the year, but the yield in good will is invaluable. It is ever so much more readily understood than the written report which accompanies it, and it is a helpful addition to the physician's record. It also may help to convince a hesitant patient of the necessity of entering a hospital. Seeing the x-ray is usually more impressive than verbal explanations.

Just as the sanatorium physician needs the local physicians for consultation, so do they need him. This is especially true in the smaller communities where a "chest specialist" is rarely available. The sanatorium physician should offer his services to the medical fraternity; he should volunteer to do "obliques," "laterals," bronchograms or unusual laboratory studies in order to establish the diagnosis in atypical cases. The practitioner wishes to know what the lesion is; whether or not it is active; and it is our responsibility to supply him with the correct information if that is possible.

Such courtesies encourage a greater intimacy between the outside man and the sanatorium physician; patients will be sent to

the clinics more readily for routine chest films and for consultation in cases with undiagnosed chest disease.

The physical isolation of the small sanatorium usually cannot be overcome but there is no reason why the same condition must prevail in its relation to the medical and lay community. The hospital through its staff should be more or less intimately associated with the local Tuberculosis and Health Association for there again co-operation and understanding result in mutual benefits. The Society as a voluntary organization may occasionally make demands or exert pressures which the Sanatorium superintendent as a public servant is unable to do. The Tuberculosis Society may have contacts with industry that will help in furthering x-ray surveys or rehabilitation or re-employment projects for hospital patients. Or it may supply funds for items which may not come within the usual boundaries of the hospital budget.

Talks to parent-teacher groups and other organizations will also reap a satisfactory harvest. The discussions should be elementary, of course, but they should be properly illustrated. The showing of an x-ray never fails to leave a marked impression, which remains with the listener long after the verbal description has faded from memory. While endeavoring to secure additional appropriations for collapse therapy, I presented x-rays to a committee of the County Board of Supervisors to demonstrate the procedures of internal pneumonolysis and extra-pleural thoracoplasty. There were films of two former patients who were now well and working. One pair showed a pneumothorax with a cavity being held out by an adhesion, and subsequent to the pneumonolysis the disappearance of both the adhesion and the cavity. The second pair consisted of a film showing one lung with several cavities and the same chest after surgery with the ribs removed and the lung collapsed. This was accompanied by the explanation that the patient had made a speedy and uneventful recovery following the surgery. The six laymen present were more quickly and thoroughly convinced of the value of the treatment than they could have been by verbal exhortation alone.

People are interested; they are becoming medically conscious and it is the duty of the local tuberculosis physician rather than the newspapers and magazines to inform them of what is happening.

The Early Diagnosis Campaign has been extended throughout the year rather than being confined to a single month. Any ethical means which will arouse the curiosity or interest of the public and bring more of them to the clinic for an x-ray, is well worth the effort. Even the negative cases are benefited; for it is comforting to know that one's chest harbors no disease.

SUMMARY

There should be a closer liaison between the County Tuberculosis Sanatorium and the community. It is the duty of the sanatorium Superintendent to inform both his medical and lay constituents of the services which his institution has to offer to them. This will result in a better understanding by the public of hospital problems and accomplishments and thereby in a more effective fight against tuberculosis.

RESUMEN

Debe existir una coordinación más íntima entre el Sanatorio para Tuberculosos de Condado y la colectividad. Es el deber del Superintendente del sanatorio informar a los elementos médicos y legos de la colectividad acerca de los servicios que puede ofrecerles su institución. Esto resultará en un mejor entendimiento de parte del público de los problemas y éxitos del sanatorio y de ese modo resultará una lucha más eficaz contra la tuberculosis.

Retiring President's Address

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Of all the diseases that attack the human body a considerable number sooner or later involve the organs of the chest. Protozoal diseases such as amebiasis and kalaazar, metazoal diseases, particularly strongyloidosis, ankylostomiasis, paragonimiasis, schistosomiasis, trichinosis and ascaridiasis, rickettsia, namely, typhus fever, spotted fever and tsutsugamushi, and filtrable viruses such as those of influenza and ornithosis, often attack the respiratory organs. Tuberculosis, which has now been reduced to seventh place as cause of death in the United States, still is responsible for more incapacity and death than any other disease in the world as a whole. Approximately 90 per cent of clinical tuberculous lesions are located in the thorax. Malignancies, fungus infections, pneumonias, sarcoidosis, cystic disease, embolism, pneumoconiosis, various diseases of the trachea, bronchi, esophagus, pleura and diaphragm, are only a part of the conditions which serve to emphasize the great importance of the chest in medicine and surgery. If one adds the heart and great vessels, which are located in the thorax, it is obvious that a high percentage of the afflictions of the human body involve the organs of the chest.

Tuberculosis has consumed all of the time of a considerable number of physicians who are classified as specialists in this one disease. There are still many parts of the world where such limited specialization is desirable. However, in other places tuberculosis is decreasing so rapidly that the time can already be envisioned when it will pass the same gate as typhoid fever did a few decades ago. Thus, the physician working in diseases of the chest finds himself dealing more and more with nontuberculous conditions. Those who still devote their time almost exclusively to tuberculosis find that it mimicks practically every other disease entity of the lungs and pleura, and thus he must be well informed on differential diagnosis, which necessitates a knowledge of all of the diseases of the chest. Therefore, an organization of physicians devoting all or the greater part of their time to diseases of the chest was a logical development.

With rapid transportation in the offing—when a person may actually leave any point upon the earth with the rising sun, remain in the sunlight for twenty-four hours and return with the rising sun—man has so conquered space that much intermingling of the peoples of the various nations is inevitable. With this changed situation the problems of diseases, particularly those which are contagious, can no longer be looked upon as community, state, provincial or national problems, but rather problems of the world. It is therefore fitting that medical organizations become international in scope, just as the College of Chest Physicians has done. This College now has members in thirty-two different nations, with twenty-four Chapters in this and other countries. Eleven nations are represented at this meeting. New chapters are being organized in various parts of the world, the last one being in Greece. Thus, we already

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have a splendid medium of exchange of methods and ideas—an organization through which members can keep abreast of current medical situations and new developments in every part of the world.

The American College of Chest Physicians has no rival organization, since there is none that includes in its scope the entire field of chest diseases. The College must continue on an elevated plane among medical organizations and is therefore obliged to maintain its present high standards. Admission to membership must continue to be dependent upon such factors as past accomplishment, present endeavors, future promise, and the passing of a rigid examination covering all phases of chest disease work.

An important objective of this group is service to others. With the highly qualified chest workers of the world closely banded together in one organization a tremendous influence can be exerted upon the control of disease. Physicians engaged in the general practice of medicine need every service that this organization can provide. Diagnostic, therapeutic and preventive measures must be so standardized and adapted to practice that they can be employed by physicians everywhere. An important step in this direction has been the publication of "Diseases of the Chest". Although journals devoted to specialties are not widely read by physicians in general practice, the experts in the various communities who do read them can transmit important information in a condensed form to the members of their local medical societies. This is being done with considerable success by the various chapters holding their regular meetings at the same time as county and state medical societies' meetings are held. Just as the American College of Chest Physicians holds its annual meeting at approximately the same time as that of the American Medical Association, so can the chapters of various nations of the world hold their annual sessions at about the same time or often in conjunction with the meetings of their national medical organizations. Thus, no new meetings are created. The usual objection offered to the formation of new medical organizations is that there are already so many meetings and conventions that physicians are burdened with them. This objection has never applied to the American College of Chest Physicians, since its meetings have always been called at or about the time physicians were already assembled for other purposes. This organization found a niche that was not being filled by any other group of physicians interested in any phase of chest disease work and has filled it well.

Tuberculosis continues to demand a great deal of our time. In the United States the mortality reached an all-time low last year, but this must not deceive us. There are many places where persons are still becoming infected and reinfected because we have not sought out the cases early enough and prevented contagion. For a long time we talked about the control of tuberculosis and discussed the irreducible minimum. We can now see through the veil of control to the ultimate goal—eradication. Just as the veterinarian and his co-workers have completely eradicated tuberculosis from the cattle herds in large areas of this country, we now see the possibility of such an accomplishment for man. Indeed, in the state of my principal activities there are now many schools in which every child has been protected against tubercle bacilli successfully, and therefore not one is a tuberculin reactor. In other areas in the same state the incidence of reactors among grade school children in rural communities is less than 2 per cent, and in the largest city it is only 8 per cent. Therefore, if the present program can be continued,

the time is close at hand when a generation of adults will be free from tuberculosis.

One of the most fundamental activities of the College consists in aiding in the creation of committees on tuberculosis in every state and provincial medical association and further assisting these committees in the organization of tuberculosis committees in all local medical societies. The appointment of such state and local committees is relatively simple, but to stimulate activity among them is often difficult. Nevertheless this can be done, as has been well demonstrated.

The publication of up-to-date and practical monographs of the various chest diseases has considerable promise as a method of providing information for students of medicine and general practitioners. A small volume recently prepared on tuberculosis is the first of a contemplated series, each of which is to represent the coordinated efforts of a group of chest physicians.

It is the physicians of any country who must make diagnoses and administer treatment; therefore every physician should be informed on the fundamentals of diagnosis and treatment. The local physicians are always present to provide information for the public and to make examinations as indicated, whether they be for the individuals or an active community. Every physician should participate in the tuberculosis control program. When this situation obtains, we still will not have enough workers. Therefore, it behooves us to discourage any program which does not enlist the interest of and make a place for the activities of every physician. The adage to the effect that a man who can put twenty persons to work is more valuable than the man who can do the work of twenty persons, applies among physicians as it does among persons in all other activities of life.

Physicians devoting their lives to diseases of the chest should participate as much as possible in the activities of lay organizations striving to help control diseases which attack the chest, such as cancer and tuberculosis. Each member of this College should hold membership in his state or provincial as well as his national tuberculosis association, and if time permits he should take an active part in his county or municipal society. These organizations have contributed vitally to tuberculosis control. They need moral and financial support, as well as advice and information which only experts in diseases of the chest can give.

Although local, state and provincial health officers are the only persons who are legally responsible for the control of contagious diseases in the areas which they serve, with few exceptions they have in the past manifested little interest in tuberculosis control. This may be due in part to the fact that in the past they have devoted most of their efforts to the control of contagious diseases, such as diphtheria and typhoid fever, but have not regarded tuberculosis as a contagious disease. With the present activities of the Division of Tuberculosis of the United States Public Health Service it seems possible that health officers everywhere will become interested, not just in the federal money that may be procurable for their departments, but in the actual fundamentals of tuberculosis control. With their interest being stimulated in tuberculosis they should not only welcome, but also seek the support and advice of the experts in their local communities.

The American College of Chest Physicians, with its 2,000 members, is serving as a fine stabilizer in all activities pertaining to diseases of the chest. From various parts of the world come many proposed procedures

based on misunderstanding, misinformation, lack of knowledge, personal gain, overenthusiasm for new but untried methods and attempts to accomplish without effort by short-cut and slipshod methods, which are not or cannot be supported by fundamental knowledge. The best goals in every activity of life have always been attained through great effort. So it is with chest disease work. If we are satisfied with a single phase of an examination we will get only what that phase is capable of providing and will miss all that the other phases can give us. If we are satisfied to use simple, therapeutic measures, easy to administer, our patients will benefit only to that extent; whereas, if we employ every procedure that is known to be of benefit to the patient, more lives will be saved and more persons restored to good health. If we are willing to devote little time and effort to the prevention of diseases such as silicosis and tuberculosis, the health of the citizens of our communities will improve little, if at all, and may even deteriorate. On the other hand, when we use every procedure known, no matter how laborious, time-consuming or costly, diseases will be lessened and prevented to the unquestionable benefit of our communities and nations.

Good examples of the need of a stabilizing body are to be found in the field of tuberculosis. When the stethoscope was discovered (1816), a wave of enthusiasm swept 'round the world. It was thought that this would enable physicians everywhere to diagnose disease almost at its beginning, but time proved the fallacy of such a belief.

Clinical thermometry (1868) was at first hailed with great enthusiasm. Persons ill from tuberculosis were found to have fever; therefore it was thought that by taking the temperature one might detect the presence of the disease before it had become advanced or had caused significant illness. Then it was learned that fever is often a late manifestation, and in some cases never occurs.

With the discovery of the tubercle bacillus (1882) it was predicted that the microscope would be the solution of the tuberculosis problem, but observation and study proved that the recovery of tubercle bacilli from the sputum is possible only after gross pathology is present and there is breaking down of the lesion and the patient's organisms have already been transmitted to others.

With the presentation of tuberculin (1890) there were those who thought that this alone would suffice in detecting all persons with progressive disease. However, careful study proved that this is only a test for allergy, indicating the presence of foci of living tubercle bacilli in the body. It does not determine their location, nor does it tell one whether the reinfection type of disease has developed, or whether a lesion is progressive.

When the invisible ray of Roentgen was announced (1896) and for some time thereafter, gross exaggerations were made concerning its efficacy in diagnosis. The fact that the ray was invisible and would penetrate parts of the body created mystery in the minds of the public, and all too often in the minds of physicians. Propagandists were quick to take advantage of this situation, and every diagnostic aid was pushed aside with the statement that at last one simple, single procedure had been found by which all tuberculosis could be diagnosed promptly and accurately. However, inquisitive and observing minds not susceptible to exaggeration soon pointed out the limitations of the x-ray as a diagnostic agent, such as: (1) Shadows are never pathognomonic; (2) lesions must be gross and of adequate consistency before they cast shadows dis-

cernible to the unaided human eye; (3) only 75 per cent of the lung is visualized. Thus, the x-ray is now being relegated to its proper position, which is only one part of our diagnostic armamentarium.

A heated controversy was waged regarding the relative value of the tuberculin test and the x-ray in diagnosis. In reality, neither one nor a combination of the two constitutes an examination. They are only screens; neither one is a substitute for the other.

When the red blood cell sedimentation rate was found to be accelerated in some cases of tuberculosis there were actually those who stated that this simple procedure alone would detect all tuberculosis. However, it was found not to be pathognomonic for tuberculosis, and even in the presence of tuberculosis it often fails to afford any evidence of the disease.

These and many other unwarranted tangential excursions have been detrimental to the health and life of the public and have brought no little discredit to the medical profession. Had they been avoided, our tuberculosis control program would have succeeded more rapidly. Thus, a stabilizing body could have served a useful purpose by promptly studying new procedures as they were presented and determining the limitations and the values of each, and thus properly fitting them into their place in our diagnostic armamentarium before they were widely announced. The tuberculosis situation is only one example. There are many others, including pneumoconiosis and pulmonary malignancy, where a stabilizing body could have eliminated propaganda and advised procedures based on facts. Although these are examples in history, the time has not passed for the need of a stabilizing influence which the American College of Chest Physicians can afford. Doubtless new procedures, some good and some bad, will be offered for the diagnosis, treatment and prevention of various diseases of the chest. They will receive over-enthusiastic support by some and condemnation by others. We must promptly determine their values and limitations so as to be able to recommend the good and discourage the use of the bad. The members of this College consist of persons engaged in every phase of chest disease work, and every aspect of each problem that arises can be promptly studied by them with reasonable assurance that sound advice will be forthcoming.

The future of the American College of Chest Physicians is unlimited. It is my opinion that in addition to the other splendid activities, we should have a fund available for research. Our annual dues are ridiculously low when one considers the benefits that accrue to each member. It would not be too much to double or even treble the dues and thus accumulate a substantial fund, some of which could profitably be used in research and other activities to promote the control of diseases of the chest throughout the world.

Our sole objective must continue to be the fight against disease. If we should ever be guilty of fighting other individuals or groups of persons trying to do good work in the same field, we would have entered upon a period of deterioration and therefore would have an exceedingly limited future. The fact that an individual who is doing good work in any phase of chest diseases is not a member of this organization is no reason for criticism or condemnation. There are not enough chest specialists to do the work that is in need of being done. Therefore, let us never be guilty of fighting one another or others, but always be found destroying the diseases, which are the greatest enemies of mankind.

CHARLES M. HENDRICKS, M.D., F.C.C.P.

PRESIDENT

AMERICAN COLLEGE OF CHEST PHYSICIANS

1946 - 1947

CHARLES M. HENDRICKS, M.D., F.C.C.P.

INSTALLED AS COLLEGE PRESIDENT

Dr. Charles M. Hendricks was installed as President of the American College of Chest Physicians at the annual meeting of the College in San Francisco, June 27-30, 1946. Dr. Hendricks was prominent in the organization of the College and was the first editor of Diseases of the Chest; he is still a member of the editorial board. He is a past president of the El Paso County Society; a member of the Southwestern Medical and Surgical Association, the Texas Medical Association, the American Medical Association, the National Tuberculosis Association, and the American Trudeau Society. In 1927 he was elected a fellow of the American College of Physicians. He has recently been appointed Chairman of the Tuberculosis Committee of the Texas Medical Association. He has written innumerable articles on various phases of Diseases of the Chest and on Military Medicine. He is a Staff Member of St. Joseph's Sanatorium, Southwestern General Hospital, and Providence Hospital.

Dr. Hendricks is one of the pioneers in the practice of tuberculosis, having entered the specialty upon his graduation from Medical College in 1905. After the elementary schools, he took his pre-medical work at Miami University, Oxford, Ohio; and graduated in Medicine at the Medical College of Ohio (Department of Medicine, University of Cincinnati).

From June 1905 to June 1906, he served as senior house physician in the National Jewish Hospital, Denver, Colorado. From June 1906 to January 1908, he served as assistant physician at Agnes Memorial Sanatorium, Denver, Colorado. In February 1908, he became Medical Director of the Albert Baldwin Sanatorium, El Paso, Texas. In 1909, he resigned this position to go into private practice in El Paso. In 1913, he built the Hendricks Sanatorium and was superintendent and medical director of this institution until 1920 when Dr. J. W. Laws became associate Medical Director of the institution.

In 1909, Dr. Hendricks aided in organizing the first tuberculosis clinic in El Paso, and served as director of the clinic for several years. In 1912, he was appointed one of the American Delegates to the World Congress of Tuberculosis in Rome, Italy. While in Europe, he attended many clinics, among them Forlanini's Clinic in Rome, and became intensely interested in pneumothorax. Dr. Hendricks was one of the first physicians to begin the regular use of pneumothorax in this country, and is probably the first to successfully employ it bilaterally. Dr. Hendricks recently received a grant to further the study of tyrothricin and other antibiotics in the treatment of chronic diseases of the chest.

When Dryer reported his de-fatted tuberculosis vaccine, Dr. Hendricks visited Sir Almoth Wright at St. Mary's Hospital in London, and also Dr. Dryer's laboratory at Oxford for the purpose of investigating the merits of this new vaccine. Like many other attempts, Dr. Dryer's vaccine proved to be only another type of tuberculin of questionable value.

Dr. Hendricks has always been interested in Military Medicine, and has been Chairman of the Council on Military Affairs and Public Health of the College since its inception. He relinquished this appointment on being elevated to the Presidency of the College. Soon after graduation in medicine, he was appointed a member of the Medical Reserve Corps of the United States Army. In 1910 and 1911, he served as post surgeon at Ft. Bliss, Texas. Upon the entry of the United States into the first World War, he was ordered to duty with the rank of captain. He served with the A.E.F. in France and in the Army of Occupation in Germany. He was discharged in 1919, a Lieutenant Colonel, and was appointed Colonel in 1922. He served as Commanding Officer of the 315th Medical Regiment from 1922 until he was retired to the inactive list in 1941 because of age.

Dr. Hendricks has been intensely interested in the civic affairs of his home city. He served as President of the El Paso Chapter, American Red Cross, for eight years, and organized it for war work in 1941. He is married and has four daughters.

TWELFTH ANNUAL MEETING

American College of Chest Physicians

More than 400 physicians and their wives registered at the Twelfth Annual Meeting of the American College of Chest Physicians held at San Francisco, California, June 27-30, 1946. They came from 36 states and the District of Columbia, Hawaii, Puerto Rico and from 11 other countries. The other countries represented at the meeting were: Argentina, Australia, Brazil, Canada, China, Denmark, England, France, Lebanon, Mexico and Paraguay. Mexico, with 16 physicians, had the largest delegation from outside of the United States of America.

An excellent scientific program was presented and much important business concerning the specialty of diseases of the chest was discussed at the meeting. Complete reports of these activities will be released to the College members.

On Sunday, June 30th, the first formal Convocation for Life Members and Fellows of the College was held with Dr. Charles M. Hendricks, of El Paso, Texas, the incoming President, presiding. Judge McAttee of San Francisco delivered the Convocation Address.

The following officers were unanimously elected at the meeting:

Major General S. U. Marietta (retired), Washington, D. C., President-Elect; Richard H. Overholt, M.D., Brookline, Massachusetts, First Vice-President; Louis Mark, M.D., Columbus, Ohio, Second Vice-President, and Minas Joannides, M.D., Chicago, Illinois, Secretary-Treasurer. Joseph C. Placak, M.D., Cleveland, Ohio, was re-elected as Chairman of the Board of Regents, and Harry C. Warren, M.D., San Francisco, California, was elected Member-at-Large to the Executive Council.

Dr. Wm. C. Voorsanger presided at the Annual Banquet and he presented a Gold College Fellowship Key, suitably engraved, to Dr. Harry C. Warren, Chairman of the Arrangements Committee for the meeting, in recognition of valuable services to the College. Dr. Jay Arthur Myers, the retiring president, was awarded a Certificate of Merit. Dr. Voorsanger made the presentation.

The California Chapter of the College was a grand host and conducted all of the social activities of the meeting in a manner which left an indelible impression of good fellowship.

Much favorable comment was heard concerning the attractive programs and badges prepared by the College for the San Francisco meeting.

The scientific and technical exhibits at the meeting of the American Medical Association, which opened the day after the final session of the College, were up to their usual excellence. Several of the College Fellows exhibited in the Physicians Art Exhibit, one of the major attractions at the Convention.

Annual Meeting, Executive Council

The members of the Executive Council of the College met at the Hotel Sir Francis Drake, San Francisco, Thursday morning, June 27, 1946. The reports of the standing councils and special committees were reviewed and approved. These reports were presented before the general assembly on Friday, June 28, and are published in this issue of the journal.

Annual Meeting, Board of Regents

The Board of Regents of the College met in annual session at the Hotel Sir Francis Drake, Thursday afternoon, June 27th, and the following members were present:

Joseph C. Placak, M.D., Cleveland, Ohio, *Chairman*
Donato G. Alarcon, M.D., Mexico City, Mexico
Carl C. Aven, M.D., Atlanta, Georgia (alternate)
Andrew L. Banyai, M.D., Milwaukee, Wisconsin
James F. Brewer, M.D., New Bedford, Massachusetts (alternate)
Dean B. Cole, M.D., Richmond, Virginia
Carl H. Gellenthien, M.D., Valmora, New Mexico (alternate)
Alvis E. Greer, M.D., Houston, Texas (alternate)
Edward W. Hayes, M.D., Monrovia, California
Charles M. Hendricks, M.D., El Paso, Texas
William A. Hudson, M.D., Detroit, Michigan
Donald R. McKay, M.D., Buffalo, New York (alternate)
Jay Arthur Myers, M.D., Minneapolis, Minnesota
John E. Nelson, M.D., Seattle, Washington (alternate)
J. Winthrop Peabody, M.D., Washington, D. C.
*H. I. Spector, M.D., St. Louis, Missouri
James H. Stygall, M.D., Indianapolis, Indiana
Paul A. Turner, M.D., Louisville, Kentucky
Murray Kornfeld, Chicago, Illinois, *Executive Secretary*

*Deceased.

Dr. Placak called the meeting to order. Most of the afternoon was devoted to the report of the committee appointed to cooperate with the Advisory Board for Medical Specialties for the purpose of studying the advisability of organizing an American Board of Diseases of the Chest. Following the discussion a resolution was proposed and adopted by the Board of Regents of the College recommending the establishment of a board of diseases of the chest within the present structure of specialty boards. This proposal was presented before the general assembly of the College in annual session at the Hotel Sir Francis Drake, Friday morning, June 28th, and unanimously approved. A complete report of the proceedings will be mailed to the members of the College. The Board of Regents also approved a number of resolutions which are published in this issue of the journal.

The Board of Examiners presented a report relative to future examinations for Fellowship in the College. This matter was discussed by the members of the Board of Regents and a complete report, together with the examination questions presented at the San Francisco meeting will be published in the next issue of "Diseases of the Chest".

Dr. Placak was re-elected as Chairman of the Board of Regents. Dr. Turner was elected to represent the Board of Regents on the Nominating Committee.

The Board of Regents convened for its second session Friday evening, June 28th. The following members were present:

Joseph C. Placak, M.D., Cleveland, Ohio, *Chairman*
Donato G. Alarcon, M.D., Mexico City, Mexico
Andrew L. Banyai, M.D., Milwaukee, Wisconsin
James F. Brewer, M.D., New Bedford, Massachusetts (alternate)
Dean B. Cole, M.D., Richmond, Virginia
Carl H. Gellenthien, M.D., Valmora, New Mexico
Edward W. Hayes, M.D., Monrovia, California
Charles M. Hendricks, M.D., El Paso, Texas

Paul H. Holinger, M.D., Chicago, Illinois
William A. Hudson, M.D., Detroit, Michigan
Chevalier L. Jackson, M.D., Philadelphia, Pennsylvania
Minas Joannides, M.D., Chicago, Illinois
Donald R. McKay, M.D., Buffalo, New York (alternate)
Jay Arthur Myers, M.D., Minneapolis, Minnesota
J. Winthrop Peabody, M.D., Washington, D. C.
James H. Stygall, M.D., Indianapolis, Indiana
Paul A. Turner, M.D., Louisville, Kentucky
Murray Kornfeld, Chicago, Illinois, *Executive Secretary*

Dr. Placak, Chairman of the Board, called the meeting to order and the first order of business was the presentation of a resolution by Dr. Hendricks requesting the approval of a design for a medal to be awarded for outstanding achievement in the field of diseases of the chest. The medal was designed by Lt. Carroll N. Jones of Walter Reed Hospital. Upon motion by Dr. Gellenthien and seconded by Dr. Hayes, it was moved to adopt the design as submitted. Dr. Hendricks then moved that the present committee which initiated and directed the designing of the medal be dismissed and that a committee be appointed in compliance with the resolution adopted at the meeting of the Board of Regents held at Cincinnati, November 11, 1945 ("Diseases of the Chest," Vol. 12, No. 1, January-February, 1946, p. 77). Dr. Gellenthien moved its adoption, seconded by Dr. Hayes and unanimously passed.

Dr. Jackson introduced a proposal that consideration be given to the international aspects of the College and that the by-laws be studied with a view towards incorporating the word "international" into the present name of the College. Upon motion by Dr. Peabody and seconded by Dr. Hayes, the Chairman of the Board of Regents was authorized to appoint a committee to give further study to this proposal. Dr. Placak appointed Dr. Chevalier L. Jackson, Dr. Donato G. Alarcon and Dr. Charles M. Hendricks as members of the committee.

Dr. Hendricks introduced a resolution recommending the establishment of a research council in diseases of the chest. Upon motion by Dr. Banyai and seconded by Dr. Joannides the resolution was unanimously adopted.

Dr. Peabody reported for the Ways and Means Committee and urged that members of the College assist the committee in obtaining additional advertising revenue for the College journal from acceptable manufacturers of pharmaceuticals and supplies.

Dr. Harry C. Warren was elected to represent the Board of Regents on the Executive Council of the College.

Special Meeting, Board of Regents

A special meeting of the Board of Regents was held on Sunday morning, June 30th. The purpose of the meeting was to receive a delegation from the American Board of Internal Medicine and to hear the report from Drs. Peabody and Myers who, upon invitation, had attended a meeting of the American Board of Internal Medicine at the Hotel Mark Hopkins, San Francisco, Friday night, June 28th. Dr. James J. Waring, Denver, Colorado, Chairman of the American Board of Internal Medicine and Dr. William A. Werrell, Madison, Wisconsin, Acting Secretary, attended this special meeting at the Hotel Sir Francis Drake, as guests of the Board of Regents of the College. Dr. Placak, Chairman of the Board of Regents of the College presided and introduced the guests.

Dr. I. D. Bobrowitz, Otisville, New York, appeared before this special session to present a resolution to the effect that the present Council on Sanatorium Standards and Administration be changed to the Council of Medical Directors and Superintendents of Tuberculosis Hospitals and Sanatoria. It was also recommended that the following committees be appointed to serve under this Council: 1) Committee on Sanatorium Standards, and 2) Committee on Rehabilitation. This proposal was unanimously adopted by the Board of Regents.

Annual Meeting, Board of Governors

The Board of Governors of the American College of Chest Physicians held its annual meeting at the Hotel Sir Francis Drake, San Francisco, Thursday morning, June 27, 1946. The following Governors and alternates registered for the meeting:

Arizona	Howell Randolph, M.D., Phoenix
California	John C. Sharp, M.D., Salinas
Colorado	Arnold Minnig, M.D., Denver
Connecticut	Cole B. Gibson, M.D., Meriden (alternate)
Georgia	Carl C. Aven, M.D., Atlanta (alternate)
Illinois	Robert K. Campbell, M.D., Springfield
Indiana	James H. Stygall, M.D., Indianapolis (alternate)
Kansas	C. F. Taylor, M.D., Norton (alternate)
Kentucky	Paul A. Turner, M.D., Louisville (alternate)
Louisiana	Alton Ochsner, M.D., New Orleans (alternate)
Maryland	Otto C. Brantigan, M.D., Baltimore (alternate)
Massachusetts	Ralph Adams, M.D., Boston (alternate)
Michigan	*William A. Hudson, M.D., Detroit
Minnesota	Karl H. Pfuetze, M.D., Cannon Falls (alternate)
Mississippi	Robert E. Schwartz, M.D., Hattiesburg
Missouri	A. J. Steiner, M.D., St. Louis (alternate)
Montana	Frank I. Terrill, M.D., Deer Lodge
New Mexico	Carl H. Gellenthien, M.D., Valmora (alternate)
New York	Donald R. McKay, M.D., Buffalo (alternate)
Oregon	James M. Odell, M.D., The Dalles
Pennsylvania	Edward Lebovitz, M.D., Pittsburgh (alternate)
Texas	Alvis E. Greer, M.D., Houston (alternate)
Utah	William C. Walker, M.D., Salt Lake City
Virginia	Dean B. Cole, M.D., Richmond
Washington	John E. Nelson, M.D., Seattle
West Virginia	Walter E. Vest, M.D., Huntington (alternate)
Wisconsin	Andrew L. Banyai, M.D., Milwaukee (alternate)
U. S. Navy	Sidney A. Britten, Comdr., Washington, D. C. (alternate)
U. S. Public Health	Herman E. Hilleboe, M.D., Washington, D. C.
U. S. Veterans Administration	Roy A. Wolford, M.D., Washington, D. C.
China	Shu Fan Li, M.D., Hong Kong
Mexico	I. Cosio Villegas, M.D., Mexico City
Paraguay	Angel R. Gines, M.D., Asuncion

*Chairman.

Dr. Hudson called the meeting to order. The following forum on College activities was presented:

Requirements for Fellowship, Associate Fellowship and Associate Membership in the American College of Chest Physicians
Joseph C. Placak, M.D., Cleveland, Ohio, Chairman, Board of Regents

Conducting Examinations for Fellowship in the College
*H. I. Spector, M.D., St. Louis, Mo., Chairman, Board of Examiners

The Place of State and County Tuberculosis Committees in the College Program
James H. Stygall, M.D., Indianapolis, Indiana, Chairman, National Council of Tuberculosis Committees

Relations with Other Medical Societies
Murray Kornfeld, Chicago, Ill., Executive Secretary of the College

Improving the Teaching of Tuberculosis in the Medical Schools
Edward W. Hayes, M.D., Monrovia, Calif., Chairman, Council on Undergraduate Medical Education

Postgraduate Medical Education in Diseases of the Chest
J. Winthrop Peabody, M.D., Washington, D. C., Chairman, Council on Postgraduate Medical Education

State Laws for Tuberculosis Control
Andrew L. Banyai, M.D., Milwaukee, Wisconsin, Chairman, Committee on State Laws for Tuberculosis

*Deceased.

Dr. Hudson was re-elected Chairman of the Board of Governors and Dr. James M. Odell was elected to represent the Board of Governors on the Nominating Committee.

Report of the Secretary-Treasurer

The following is a summary taken from the Financial Report for the fiscal year ended April 30, 1946 (LaSalle Audit Company, Chicago):

BANK BALANCE, MAY 1, 1945	$28,946.30	
Cash Receipts, May 1, 1945 to April 30, 1946	39,839.16	
TOTAL CASH AVAILABLE		$68,785.46
Disbursements, May 1, 1945 to April 30, 1946		37,941.77
BANK BALANCE, APRIL 30, 1946		
General Fund	$29,243.69	
Endowment Fund	500.00	
Life Membership Fund	1,100.00	$30,843.69

BALANCE SHEET — APRIL 30, 1946

A S S E T S

ENDOWMENT FUND:		
Cash in First National Bank of Chicago	$ 500.00	
United States Savings Bonds — Series G	10,000.00	
TOTAL ENDOWMENT FUND		$10,500.00
LIFE MEMBERSHIP FUND:		
Cash in First National Bank of Chicago	$ 1,100.00	
United States Savings Bonds — Series G	1,300.00	
TOTAL LIFE MEMBERSHIP FUND		$ 2,400.00
GENERAL FUND:		
Cash in First National Bank of Chicago	$29,243.69	
Cash on Hand	25.00	
United States Savings Bonds — Series G	10,000.00	

Accounts Receivable	173.00	
Furniture and Fixtures	1,050.26	
TOTAL GENERAL FUND		$40,491.95
TOTAL ASSETS		$53,391.95

LIABILITIES AND SURPLUS

LIABILITIES:		
Collections Toward Fellowship	$ 4,755.00	
Fellowship Fees Collected (Pending Examination)	4,050.00	
Special Fund	3,314.00	
Publication Fund	3,480.00	
Chapter Funds	495.00	
Miscellaneous Liabilities	539.34	
TOTAL LIABILITIES		$16,633.68
SURPLUS:		
General Fund Surplus		$23,858.27
Endowment Fund Surplus		10,500.00
Life Membership Fund Surplus		2,400.00
TOTAL LIABILITIES AND SURPLUS		$53,391.95

The College operated during the fiscal year ended April 30, 1946 on a budget of $28,885.00 of which $26,496.77 was expended leaving a balance of $2,388.23. Expenditures approved by the Board of Regents during the year, and not budgeted, amounted to $1,054.15. For the current fiscal year, starting May 1, 1946 and ending April 30, 1947, a budget has been approved by the Executive Council of the College in the amount of $35,360.00.

Paul H. Holinger, M.D., *Secretary-Treasurer.*

Report of the Membership Committee

As of June 15, 1946, there were 1967 members in the College, and 41 applications pending investigation. This is an increase of 201 new members during the past year. Of the 1967 members, 1475 are Fellows, 120 Associate Fellows and 372 Associate Members.

During the past year we have added 147 new Fellows to our roster, and 79 new Associate Members. Our Associate Fellowship applications have not kept pace with the advancement of these members to full Fellowship in the College, and we accordingly report that there are 25 fewer Associate Fellows in the College than there were last year.

It is the opinion of the Membership Committee that efforts should be made to increase our roster of Associate Fellows. This means attracting the younger men who have had more than two years but less than five years of training in chest diseases. The membership committee feels that this is the group upon which the College will have to depend for further expansion and ways and means should be devised to interest these physicians in our College program.

Our membership now extends into 32 countries other than the United States of America and its Possessions.

MEMBERSHIP REPORT
(by countries)

The United States of America		1,552
United States Possessions:		
Alaska	1	
Canal Zone	3	
Hawaii	16	
Philippine Islands	5	
Puerto Rico	33	
	—	
		58
Other Countries:		
Argentina	34	
Australia	18	
Bolivia	5	
Brazil	45	
British Honduras	1	
Canada	57	
Chile	3	
China	4	
Colombia	9	
Costa Rica	7	
Cuba	24	
Dominican Republic	2	
Ecuador	6	
El Salvador	2	
England	1	
Greece	15	
Guatemala	2	
Haiti	2	
India	2	
Jugoslavia	1	
Lebanon	1	
Mexico	35	
New Zealand	1	
Nicaragua	1	
Norway	1	
Paraguay	3	
Peru	22	
Republic of Panama	10	
South Africa	16	
Switzerland	1	
Uruguay	4	
Venezuela	22	
	—	
		357
TOTAL MEMBERSHIP		1,967

Captain Robert E. Duncan, (MC), U.S.N., Washington, D. C., *Chairman*
Major General S. U. Marietta, U.S.A., Washington, D. C., *Vice-Chairman*
Leo Eloesser, M.D., San Francisco, Calif.
Herman E. Hilleboe, M.D., Washington, D. C.
Chevalier L. Jackson, M.D., Philadelphia, Pa.
*Ralph C. Matson, M.D., Portland, Oregon
William E. Ogden, M.D., Ontario, Canada
Richard H. Overholt, M.D., Brookline, Mass.
Joseph C. Placak, M.D., Cleveland, Ohio
Dr. Roy A. Wolford, Washington, D. C.

*Deceased.

Report of the Scientific Program Committee

The Scientific Program Committee, composed of Major General S. U. Marietta, Dr. Ralph C. Matson, who, unfortunately, died while arrangements were being made for this program, and who was replaced by Colonel John B. Grow, decided upon a plan for presenting a diversified scientific program to cover the various aspects of diseases of the chest. General Marietta, in spite of his ill health has guided the committee with his counsel and assisted in getting outstanding men to present scientific papers. As chairman of the program committee I wish to personally thank General Marietta for his counsel and cooperation.

The session on "Information Please in Medicine," which has been so successful at previous meetings, will be continued with a similar panel of experts. Because of its importance and the popular response to the past "Information Please in Medicine" programs, it has been assigned as a dinner meeting instead of a luncheon meeting in order to give the experts more time to answer the questions.

Because of the recent establishment of the Councils on European Affairs and Pan Pacific Affairs, the program committee decided that, instead of having the usual Pan American Night dinner, to have the meeting designated as "International Night" so that speakers from various parts of the world could present their papers.

The X-ray Conference has been given an important place in the College program. Dr. Glenroy N. Pierce, who is the chairman of the committee for the X-ray Conference, is doing an excellent job in getting material for the program.

In keeping with a policy at the last annual meeting of the College held in Chicago in 1944, the first day of the meeting has been given to the local chapter for the presentation of a refresher course in diseases of the chest. In 1944 the Illinois Chapter prepared and presented the papers for a half-day program. Because of the popularity of the session it was decided that the program be extended to a full day. The Program Committee wishes to compliment the California Chapter of the College for the arrangement of the very excellent refresher course.

An innovation to our program this year is the establishment of two conferences, one for Medical Directors and Superintendents, of Tuberculosis Hospitals and Sanatoria and the other for Tuberculosis Committees of the state and county medical societies. Both of these conferences are sponsored by established councils of the College and they will be in the nature of luncheon meetings. Eminent speakers have been invited to address these conferences and discuss various problems concerning their affairs.

The Scientific Program Committee wishes at this time to thank publicly the personnel at the Executive Offices and especially the Executive Secretary for the most excellent cooperation they have given us in arranging routine details of correspondence and in preparing the very attractive program.

Minas Joannides, M.D., Chicago, Illinois, *Chairman*
S. U. Marietta, Maj. Gen., (MC), Washington, D. C. John B. Grow, Col., (MC), Denver, Colo.

Report of the Editorial Board of Diseases of the Chest

Members of the Editorial Board have received a number of most complimentary statements concerning "Diseases of the Chest". Credit for these statements belongs to Dr. Matson and his associates, who accepted and edited all of the articles that have been published since his death. Soon papers will begin to appear which were approved and edited by the present Editorial Board. Then we would like to have an expression of opinion from the members of the Board of Regents and all others who are willing to do so regarding our selection, editing and grouping of articles for the various issues. Suggestions and criticisms will be welcome, inasmuch as we are desirous of keeping "Diseases of the Chest" on a high plane among medical journals.

Under the previous Editorial Board members "Diseases of the Chest" became so popular among authors that we are now receiving a large volume of manuscripts. We have not been able to accept all of the papers submitted. Some are far too lengthy and belong to the monograph field; some concern subjects on which manuscripts by other authors have recently been accepted; some contain material which does not seem suitable for "Diseases of the Chest" but belong to journals in somewhat different fields. Rarely are papers received which are considered unsuitable for publication in any journal. Our only unpleasant task has been to return papers which we are unable to publish to their authors because we thoroughly appreciate the confidence manifested in submitting manuscripts and the disappointment experienced on their return.

Papers accepted are subject to slight editorial change, such as deletion of words, sentences or paragraphs which do not seem to enhance the value of the presentation. This conserves the present necessarily limited pages of the journal. Frequently references are not prepared in the desired form. Authors can avoid delay by using the same form as appears in previous issues of "Diseases of the Chest" or the "Journal of the American Medical Association".

An unpleasant but unavoidable situation to date is the long interval between acceptance and publication of papers. A large backlog of acceptable papers exists. The Editorial Board members are hopeful that the College will be able to provide for a larger journal so as to at least partially meet the increasing demand and publish more promptly. Since the College has become a world-wide organization with Chapters constantly being formed in various nations, doubtless the demand for space in the official publication will increase.

"Diseases of the Chest" now has 2650 subscribers. With such a large number of excellent practical papers constantly being submitted for publication, we believe the journal should reach a much larger number of physicians. With committees on tuberculosis now being organized in so many local medical societies, as well as those already appointed in state medical associations, "Diseases of the Chest" could serve a useful purpose in the libraries of all these organizations.

Medical students appreciate the opportunity of becoming familiar with journals in various specialties. They should have "Diseases of the Chest" available at all times. A considerable number of our members hold faculty positions in schools of medicine or reside in close proximity to such schools. It would be a valuable contribution from them to subscribe to

the journal for each of the medical school fraternities and sororities and urge that it be made available in the school libraries of their respective institutions. Where this has already been done the students of medicine as well as faculty members are enthusiastic and grateful for the opportunity to keep abreast of the activities in the field of chest diseases. Becoming familiar with the journal during student days will cause many of them to seek information from its pages after graduation.

Doubtless many members of the College have suggestions for improvement of "Diseases of the Chest," which the Editorial Board eagerly solicits. This is the Journal of the College and we are desirous of having it be everything that you desire in such a publication.

Jay Arthur Myers, M.D., Minneapolis, Minnesota, *Chairman*
Andrew L. Banyai, M.D., Wilwaukee, Wis. *Champ H. Holmes, M.D., Atlanta, Georgia
Chas. M. Hendricks, M.D., El Paso, Tex. Richard H. Overholt, M.D., Brookline, Mass.

*Deceased.

Report of the Council on Undergraduate Medical Education

The result of eleven years of concentrated effort to improve the teaching of tuberculosis to undergraduate students in the medical schools in this country and in Canada has culminated in the preparation of a book on tuberculosis which our council feels is the primary need and perhaps the answer to this important problem.

The publication of this book was decided upon by our council after full discussion of all of the problems involved with the Board of Regents of the College, and after a comprehensive survey was made, in which the deans and the heads of departments of medicine in the medical schools were consulted.

After it was decided to publish a book on tuberculosis for undergraduate medical students, our council was confronted with the problem of compiling the chapters which were to go into the book. Authors who are well recognized in their particular fields were invited by our council to write the different chapters. I want to take this opportunity to personally thank each of the authors for his cooperation in helping to make the book possible.

It has not been an easy task to correlate all of the chapters into a finished product, but I am very happy to report to the members of the College that all of the authors have been very cooperative and have readily accepted the suggestions and criticism which were necessary in order to bring out the type of book which would best serve the purposes and intentions of our Council on Undergraduate Medical Education.

This book, we believe, sets a precedent in that it will not appear under the name of a single author. It will be released as a publication of the American College of Chest Physicians and each of the authors will be given due credit for the chapter which he has written. The subject matter and the names of the authors have been widely publicized in the College journal, "Diseases of the Chest," and there is no need for me to repeat this information in this report.

The book, entitled "The Fundamentals of Pulmonary Tuberculosis and Its Complications (for the student, the teacher and the practicing physician," will be published by Charles C. Thomas Publishers, Springfield,

Illinois, and we hope that it will be released for sale at an early date.

Our council trusts that the book will receive a wide distribution and that it will become the recognized teaching manual on the subject of tuberculosis in all of the medical schools throughout the world. It is the intention of the council to revise the contents of the book at regular intervals and bring the subject matter up to date.

Our council recommends that consideration be given to the compilation of a similar book on non-tuberculous diseases of the chest.

We urge every member of the College to obtain a copy of the book when it is released and we invite your helpful suggestions for improving the teaching of tuberculosis and other chest diseases in our medical schools.

Edward W. Hayes, M.D., Monrovia, California, *Chairman*

Andrew L. Banyai, M.D., Wauwatosa, Wis.
Benjamin L. Brock, M.D., Waverly Hills, Ky.
H. Frank Carman, M.D., Dallas, Tex.
Sydney Jacobs, M.D., New Orleans, La.
C. Howard Marcy, M.D., Pittsburgh, Pa.
John H. Skaviem, M.D., Cincinnati, Ohio
*H. I. Spector, M.D., St. Louis, Mo.
Nelson W. Strohm, M.D., Buffalo, N. Y.

*Deceased.

Report of the Council on Postgraduate Medical Education

The Council on Postgraduate Medical Education of the College is pleased to report that the first postgraduate course in diseases of the chest approved by our council was presented under the auspices of the Illinois Chapter of the College at the Michael Reese Hospital, Chicago, Illinois, April 1 to 6, 1946.

Twenty-five physicians from 15 states and the Philippine Islands registered for the course. At a dinner given at the end of the course, in which both the teachers and the students participated, a testimonial was given by the class valedictorian which expressed the feelings of the physicians who completed this postgraduate course in diseases of the chest.

Our council wishes to compliment the Illinois Chapter of the College and recommends that the chapter conduct this postgraduate course annually and that other chapters of the College in teaching centers give due consideration to the establishment of similar courses. The council will be pleased to give guidance and official approval to those courses which meet the standards established by the Council on Postgraduate Medical Education of the American College of Chest Physicians.

So that the College Chapter officials, program committees, and others concerned with the preparation of scientific programs, can obtain information regarding authoritative speakers on timely subjects in the realm of diseases of the chest, the Council on Postgraduate Medical Education of the College has instituted a Speakers Bureau.

This information is compiled and maintained at the executive offices of the College in Chicago and we offer this service to those of you who are interested in obtaining such information. Members of the College who wish to be registered with the Bureau should send the titles of their papers together with a brief resume and all other pertinent information, to the Speakers Bureau, in care of the College offices at Chicago. This is another service which the College is offering to you and we hope that you will make good use of it.

The members of the Council on Postgraduate Medical Education are anxious to have your suggestions and recommendations for improving our present activities and we would also like to receive your ideas for new activities which would logically come under the jurisdiction of the council.

J. Winthrop Peabody, M.D., Washington, D. C., *Chairman*

Paul D. Crimm, M.D., Evansville, Ind.
James S. Edlin, M.D., New York, N. Y.
Geo. B. Gilbert, M.D., Colorado Springs, Colo.
Alvis E. Greer, M.D., Houston, Texas
Carl R. Howson, M.D., Los Angeles, Calif.
I. L. Robbins, M.D., New Orleans, La.
Moses J. Stone, M.D., Boston, Mass.
Willard Van Hazel, M.D., Chicago, Ill.

Report of the Council on Sanatorium Standards and Administration

The Council on Sanatorium Standards and Administration does not desire, at this time, to outline to you what we think the standards for tuberculosis sanatoria and hospitals should be. On the other hand, we wish to point out to you one or two major deficiencies which confront our institutions, with the hope that their need may be met. In addition, we want to tell you about our plans to organize a Conference of Sanatorium Medical Directors and Superintendents.

This conference is being sponsored by the Council on Sanatorium Standards and Administration and will be organized at a luncheon meeting on Saturday, June 29th. The Conference will be addressed by Dr. J. Winthrop Peabody, Past President of the College, and the subject of his talk will be "Tuberculosis Sanatorium Standards". All members of the College are invited to attend the Conference and we suggest that you get your tickets for the luncheon as early as possible.

The purpose of the conference is to give the leaders of the various tuberculosis institutions throughout the country an opportunity to openly discuss their administrative problems and to work out, if possible, ways and means of remedying them. In this way it is believed that hospital standards may be raised. The standards which we should, as individuals, set as our goal are those which will accomplish what we all are striving for, the control of pulmonary tuberculosis.

Sanatorium standards, strictly speaking, refer to those requirements which have to do with the proper management of the patient once he enters the sanatorium, e.g., education, isolation, treatment and rehabilitation. We must not forget, however, from a community standpoint, that the hospital does not meet minimal standards if it does not have sufficient beds to care for every active case in the community. This presupposes that the case finding program in the community is adequate. Until each community realizes its needs for beds and supplies them, no satisfactory program of tuberculosis control can be accomplished.

Many sections of the country have met their requirements, so far as numbers of beds are concerned, however, few centers have developed a satisfactory rehabilitation program. Rehabilitation has been the weakest link in the chain of control throughout the United States. The physician himself may be to a large extent responsible for the fact that our rehabilitation needs have remained unmet. The physician has been chiefly interested in the physical restoration of the patient and has shown a lack of interest in a planned program of rehabilitation. This may be explained in some instances because of a lack of beds for the

tuberculous and the necessity for a rapid turn-over of patients. Such a situation would not make an in-sanatorium rehabilitation program workable. Again in the past the governing boards of tuberculosis hospitals have not included in their budgets monies for rehabilitation purposes. Both the above reasons for a lack of rehabilitation services could be met through education. The educable person must be educated before he is willing to legislate, but legislation when properly directed will often times save time and efforts toward education of certain groups which are beyond our reach.

With the passage of the Borden-LaFollette Act of 1943, we have a firm foundation on which a constructive program of rehabilitation may be built. This Act provides for the rehabilitation of disabled civilian tuberculous patients on a Federal-State basis. The Federal Government is permitted to assume all necessary State administrative costs and the cost of vocational advisement and counselling. The cost of vocational training is shared equally by the State and Federal Governments and at no cost to the patient. Medical Directors and Superintendents are urged to contact their State Department of Vocational Rehabilitation for the purpose of securing the latest information relative to the establishment of rehabilitation programs according to their needs.

With the establishment of the Department of Medicine and Surgery in the Veterans' Administration, physicians and other key workers are being taken away from the civilian hospitals. To meet this crisis there is nothing left for the governing boards to do except to meet the salaries being given by the Federal Government. Tuberculosis physicians and other key workers in civilian hospitals have been poorly paid in the past. If Sanatorium Standards are to be kept on a high plane in the future it will be absolutely necessary to have a good staff, both in numbers and in quality. This can be accomplished by giving the Staff not only a feeling that he is a necessary part of the institution and that he is wanted on a permanent basis, but he must be given an adequate monetary return for his services.

Benjamin L. Brock, M.D., Oteen, North Carolina, *Chairman*
Russell S. Anderson, M.D., Erie, Pa.
I. D. Borrowitz, M.D., Otisville, N. Y.
Merle D. Bonner, M.D., Jamestown, N. C.
Kenneth G. Bulley, M.D., Aurora, Ill.
J. B. McKnight, M.D., Sanatorium, Tex.
Myron Miller, M.D., Columbus, Ohio
Joseph R. Morrow, M.D., Ridgewood, N. J.
Harry C. Warren, M.D., San Francisco, Calif.

Report of the Council on Military Affairs and Public Health

The Council on Military Affairs and Public Health of the American College of Chest Physicians has divided its program into two parts: a) Activities which are primarily concerned with returning veterans and b) Activities which are concerned with the public health.

a) *Service for Returning Veterans.*

The Council on Military Affairs and Public Health was instrumental in having a resolution adopted by the Board of Regents of the College to establish a Medical Service Bureau for returning veterans at the executive offices of the College. During the past year 120 physicians took advantage of the service. In addition, the medical directors of sanatoria and members of the College were

canvassed for positions available and all of these positions were advertised in the College journal. Returning veterans seeking positions were given the opportunity of inserting advertisements in the journal without cost. We have no figures on the number of physicians who obtained positions as a result of the College Medical Service Bureau. We are pleased to report that requests for positions are fewer and that most of the sanatoria have been able to obtain additional medical personnel. The Medical Service Bureau of the College will continue to serve as long as there is a need for this type of service.

b) *Public Health.*

In the March-April, 1945 issue of "Diseases of the Chest" the Council on Military Affairs and Public Health of the College published an article entitled "Man Power and Tuberculosis". This article was intended as a follow-up to the article previously published in "Diseases of the Chest," entitled "Tuberculosis in Our Industrial Army; An Appeal to Management and Labor" (May-June, 1943, Vol. 11, No. 3).

Our council received requests for more than twenty thousand reprints of the first article and to date we have received requests for 1400 reprints of the article entitled "Man Power and Tuberculosis". The objectives of these two articles were to encourage mass chest x-ray examinations in industry, to urge that the services of qualified chest specialists be used as consultants, and to set up a procedure for the employment of personnel with arrested tuberculosis.

It is the aim of our council to encourage intelligent supervision of industrial workers insofar as diseases of the chest are concerned.

Now that the war has ended, our council recommends that that portion of our activities which has been concerned with military affairs be turned over to some other council or committee and that the name of the present council be changed to read "Council on Public Health". This resolution is respectfully submitted to the Board of Regents of the College for their approval.

Charles M. Hendricks, M.D., El Paso, Texas, *Chairman*
Richard Davison, M.D., Chicago, Ill.
Capt. Robert E. Duncan, U.S.N., Washington, D. C.
Herman E. Hilleboe, M.D., Washington, D. C.
Dr. Roy A. Wolford, Washington, D. C.
Maj. Gen. S. U. Marietta, U.S.A., Washington, D. C.
Joseph W. Post, M.D., Philadelphia, Pa.
Samuel E. Thompson, M.D., Kerrville, Tex.
Walter E. Vest, M.D., Huntington, W. Va.

Report of the National Council of Tuberculosis Committees

The National Council of Tuberculosis Committees of the American College of Chest Physicians is pleased to report that in the United States there are tuberculosis committees in the state medical societies of forty (40) states and the District of Columbia. A number of states have reported the organization of tuberculosis committees in their county medical societies. There should be a tuberculosis committee in every state and county medical society and to reach this goal is one of the

objectives of the National Council of Tuberculosis Committees of the College.

In order to enable the members of the tuberculosis committees of the state and county medical societies to meet for the purpose of exchanging ideas and experiences, it has been deemed advisable to organize a Conference of Tuberculosis Committees. This Conference is sponsored by the National Council of Tuberculosis Committees of the American College of Chest Physicians and the first of these conferences will be held on Sunday, June 30th. Dr. Herman E. Hilleboe, Medical Director, Chief, Tuberculosis Control Division, U. S. Public Health Service, Washington, D. C., will address the Conference and the subject of his talk will be "State and Local Problems of Tuberculosis Control". Following Dr. Hilleboe's talk we will proceed with the organization of the Conference. It is planned that the Conference will meet in the same city and at the time of the annual meetings of the American College of Chest Physicians.

James H. Stygall, M.D., Indianapolis, Indiana, *Chairman*

Arnold S. Anderson, M.D., St. Petersburg, Fla.
James F. Brewer, M.D., New Bedford, Mass.
D. W. Heusinkveld, M.D., Cincinnati, Ohio
Robert G. McCorkle, M.D., San Antonio, Tex.
John S. Packard, M.D., Allenwood, Pa.
S. A. Parowski, M.D., San Diego, Calif.
John K. Shumate, M.D., Madison, Wis.
Nelson W. Strohm, M.D., Buffalo, N. Y.

Report of the Council on European Affairs

The Council on European Affairs was organized following the last meeting of the Board of Regents in November, 1945. It has been gratifying to note the interest and enthusiasm with which Fellows of the College who are members of this Council welcomed the opportunity of expanding the activities of the College in this new sphere.

Our aim is to build and maintain a close cooperation with qualified physicians engaged in diseases of the chest in Europe. It is felt that in this manner, the advancement of medical science in this field could be effectively promoted. A constant, mutual exchange of ideas dealing with pertinent problems is considered of great future benefit. Also, it is thought that making the scientific achievements of the College available to the chest specialists of Europe is bound to bear valuable fruits.

We are happy to report that some of our plans have already materialized. It is, indeed, a great pleasure to inform the Board of Regents that a Chapter of the College has already been organized in Greece. This has been accomplished through the creditable efforts of Dr. Peter A. Theodos, a member of this Council, during his recent stay in that country. The officers of the newly constituted Greek Chapter are: President, Dr. N. Oekonomopoulos; Vice-President, Dr. B. Papanicolaou; and Secretary-Treasurer, Dr. E. Joannides. Dr. Papanicolaou was appointed Regent of the College for Greece and Dr. Oekonomopoulos as Governor. There are four Fellows and eleven Associate Members of the College in Greece. We are doing our best to extend to this new European Chapter all the moral support and cooperation we can.

Another concrete item we wish to report to the Board of Regents is the assignment of Dr. Robert Neubauer of Yugoslavia to the task of organizing a Chapter of the College in that country. Dr. Neubauer is a chest specialist of long experience who represented the Yugoslavian Red Cross in this country. His contact with Dr. J. C. Placak, Chairman of the Board of Regents, and with other Fellows of the College during his

stay here gave the impetus to proceed with efforts for organizing a Chapter of the College in Yugoslavia.

Preparatory moves are in progress to arrange for the establishment of Chapters in England, France, Belgium, Denmark, Switzerland, Norway, Poland and other European countries.

The members of this Council are hopeful and confident that in the reasonably near future they will be able to accomplish the task assigned to them.

Andrew L. Banyai, M.D., Milwaukee, Wisconsin, *Chairman*
Joseph C. Placak, M.D., Cleveland, Ohio, *Vice-Chairman*

Capt. Robert E. Duncan, (MC), U.S.N., Bethesda, Maryland
Herman E. Hilleboe, M.D., Washington, D. C.
Chevalier L. Jackson, M.D., Philadelphia, Pa.
Minas Joannides, M.D., Chicago, Ill.
A. A. Leonidoff, M.D., Poughkeepsie, N. Y.
Maj. Gen. S. U. Marietta, (MC), U.S.A., Washington, D. C.
Hugo Polderman, M.D., Waverly Hills, Ky.
Hilary Roche, M.D., Montana, Switzerland
Luis Saye, M.D., Buenos Aires, Argentina
*H. I. Spector, M.D., St. Louis, Mo.
Peter A. Theodos, M.D., Philadelphia, Pa.

*Deceased.

Report of the Council on Pan Pacific Affairs

In keeping with the policy of the College to build a world organization of chest specialists, I was very happy to accept the appointment as Chairman of the Council on Pan Pacific Affairs of the College. The officials of the College are now giving consideration to the appointment of the other members of the College who are to be invited to serve as members of this important council. We hope to be able to announce the completion of the membership of our council at an early date.

The Council on Pan Pacific Affairs will be concerned with:

1) Building the College membership,
2) Maintaining the College prestige,
3) Arranging for an interchange of scientific information between all of the members of the College in all of the countries which come within the realm of the council.

The College membership now extends into Australia, New Zealand, India, China, South Africa, the Philippine and the Hawaiian Islands. Australia, with 19 members, has the largest number of members of any of the countries functioning under the auspices of our council. In keeping with the College policy, we are encouraging Australia to organize a chapter of the College to meet regularly with the Australian Medical Society and we shall encourage other countries to follow this plan when their membership warrants such action.

Key members in all of the countries mentioned in this report will be invited to serve as members of the Council on Pan Pacific Affairs. We shall ask for their cooperation and we shall respect their counsel and advice in furthering the activities of the College in their respective countries. We feel that our council will serve as an important link in the over-all plan for a world society of chest specialists and we shall be pleased to cooperate with the other councils of the College who are carrying out similar objectives in other parts of the world.

Harry C. Warren, M.D., *Chairman.*

Report of the Council on Pan American Affairs

Those registered at the 12th Annual Meeting of the College held at San Francisco, June 27-30, 1946, from the Latin American countries were:

Argentina:	Ruben Sampietro, M.D., Buenos Aires
	Alberto Sanguinetti, M.D., Buenos Aires
	Jose Totone, M.D., Cordoba
Brazil:	Paulo Seabra, Rio de Janeiro
Mexico	Ramiro Garcia B., M.D., Hermosillo, Sonora
	Gaston Madrid S., M.D., Hermosillo, Sonora
	Buenaventura Aranda Reyes, M.D., Mexicali
	Francisco Canedo, M.D., Mexicali
	Jorge J. Olivanes, M.D., Mexicali
	Enrique Sanchez Z., M.D., Mexicali
	Donato G. Alarcon, M.D., Mexico City
	Manuel Alonso, M.D., Mexico City
	I. Cosio Villegas, M.D., Mexico City
	Elihu J. Gutierrez, M.D., Mexico City
	Miguel Jimenez, M.D., Mexico City
	Aradio Lozano Rocha, M.D., Mexico City
	Jose A. Raynal Escobedo, M.D., Mexico City
	Fernando Rebora, M.D., Mexico City
	Horacio Rubio Ralacios, M.D., Mexico City
	Carlos Perez Pliego, M.D., Novajoa, Sonora
Paraguay:	Angel R. Gines, M.D., Asuncion
Puerto Rico:	Felix M. Reyes, M.D., Bayamon

Dr. Donato G. Alarcon, Regent of the College for Mexico, participated in the scientific program as well as in the discussions at the meetings of the Board of Regents. Scientific papers were also presented by Dr. Miguel Jiminez of Mexico City and by Paulo Seabra of Rio de Janeiro, Brazil. Dr. I. Cosio Villegas, Governor of the College for Mexico, and Dr. Angel Gines, Governor of the College for Paraguay, also participated in the activities at the meeting.

All of the chapters of the College in the Latin American countries have been active during the past year and the organization of several new chapters is being considered. The activities of the Latin American chapters have been publicized in "Diseases of the Chest".

Several Fellows of the College took part in the program of the Second National Congress on Tuberculosis held in Mexico City in July of this year. (See report of meeting in Chapter News section.)

An invitation has been received from the Cuban Chapter of the College to meet at Havana on November 5, and it is anticipated that a large group of College members from the United States will attend this meeting. The College has also received an invitation from the Peruvian Chapter to send delegates to the Congress to be held at Lima under the sponsorship of ULAST, March 17-22, 1947.

The members of our Council continue to receive visitors from the various Latin American countries and every effort is made to assist these physicians in obtaining the best medical education available in our country.

The ending of the war has presented many new problems. The Council on Pan American Affairs will meet these problems as they arise and with the cooperation of our members in all of the countries in this hemisphere, will continue the College program of improving medical education and elevating the standards in the specialty of diseases of the chest.

Chevalier L. Jackson, M.D., *Chairman.*

Report of the Committee on Public Relations

The Committee on Public Relations of the American College of Chest Physicians has confined its program to obtaining mention of College activities in recognized state, national and foreign medical journals. During the past year, ending June 1, 1946, articles relating to the activities of the American College of Chest Physicians have appeared in the following journals:

State Medical Journals	77 notices
Journal of the American Medical Association	8 notices
Other national medical journals	23 notices
Foreign medical journals	18 notices
TOTAL	126 notices

In addition to this, the scientific programs of many of the College chapters were published in the official programs of state and district medical societies. No doubt, other mention of College activities appeared in medical journals and in other media which have not come to the attention of our committee. It would be helpful if officials of the College would send clippings and other notices appearing in the journals and which relate to College activities to the Executive Offices of the College at Chicago.

Edward P. Eglee, M.D., New York, New York, *Chairman*
*Champ H. Holmes, M.D., Atlanta, Ga. John Roberts Phillips, M.D., Houston, Tex.
Robinson Bosworth, M.D., E. St. Louis, Ill. William C. Voorsanger, M.D., San Francisco, Calif.

*Deceased.

Report of the Committee on the Management and Treatment of Diseases of the Chest

Last year in Chicago, this committee reported on a study of the problem entailed in trying to do any constructive work on the subject of Management and Treatment of Diseases of the Chest. At that time we pointed out that the major difficulty is the lack of uniformity in terminology and the lack of definite criteria in applying what therapeutic standards were generally recognized. The result is that using a group of minimal cases, we may have, according to published figures, a 50 per cent good result without any kind of treatment. The same group used with any type of treatment could hardly fail to give a successful result in at least 50 per cent of the cases if the whole number were used; and if by some accident a certain half of the number were selected, it is possible that the result might be 100 per cent good or 100 per cent bad depending on which half was treated. Furthermore, we have found no recognized method of determining activity, arrest, stability, or instability of tuberculous lesions—nor when a case is a successful or an unsuccessful result.

A similar difficulty exists in the field of non-tuberculous disease. In the fields of bronchiectasis, lung abscess, lung tumor, emphysema, and others the same lack of uniformity is found. No one argues about the diagnosis of gastric ulcer, diabetes, or coronary disease, but what one clinic calls emphysema another clinic may call reasonably healthy lungs.

Whatever the aspect of diseases of the chest, the same problem occurs, and the same difficulty in solution is encountered. We do not pretend that we have arrived at the answer, nor that we have an overall scheme that will simplify and clarify the situation; but we do believe that we have arrived at a method by which the membership of this College may work out a satisfactory result. After some study, it seems that enough information is not at hand now to justify reclassification of pulmonary disease if such classification is to be constructive and useful. The following program is to be instituted:

We shall divide diseases of the chest into the two logical groups—"non-tuberculous" and "tuberculous". We shall first select 10 pilot institutions, whose patient load includes enough of both groups and whose facilities are adequate to do any type of diagnostic work suggested. These will be asked to apply a set of diagnostic criteria to all cases and to compare the results under this system to those obtained by their customary methods. These figures after correlation will enable us to arrive at an efficient diagnostic scheme, so that we may say "All well organized hospitals should have such and such diagnostic facilities—clinical, x-ray, laboratory, bronchoscopic, and that such and such methods are necessary to establish the differential diagnosis of chest diseases."

A similar study will determine indications and necessity for treatment, and another to correlate and determine means of calibrating results. These, of course, may run simultaneously.

In the field of tuberculosis, the problem is more complex, if only because so many men have had so much experience with this disease that their ideas are well defined. It is in discussion with other men that analysis shows the same words used with different meanings, or the same lesion called by different names.

It is our feeling that we must establish criteria to separate primary from secondary tuberculosis. We must establish by some means the differentiation of the various types of secondary disease according to the four criteria of *resolving*, *regressing*, *stationary*, and *progressive*.

It is necessary to determine which of these types of tuberculosis exists and if the lesion is unilateral or bilateral. If the latter, whether both sides present the same type of lesion since the words "bilateral disease" may mean many different things to different people.

We know that some tuberculosis presents disease localized in the lungs, and some a wide-spread involvement of many organs in addition to the pulmonary focus. This difference may be a more important cause of variation in results of therapy than is recognized. We must have criteria to recognize this. And we must recognize the differences of age, race, and social situation in calibrating results since all of us are acquainted with the tremendous influence of these three factors.

This is the basis. We propose, in the year to come, to select five or six active chapters of the college and through these local means, apply these various criteria to the cases in the tuberculosis institutions. And further to set up standards for activity and inactivity of lesions and stability of arrest. These criteria compared with those in customary use in the various institutions will give us an indication of the values of each type. From these figures, on careful collection and digestion, may arise some more definite and more easily interpreted criteria and terminology.

The various subcommittees, who are especially qualified in their subjects, will render opinions on proposed schemes and the analyses of

statistical returns. This will not stifle progress and original ideas as some have feared. Rather by removing the source of confusion, it will stimulate work since the tremendous differences in results with the same technics will be much less likely when all use the same criteria.

Under the present recognized standards, we did not feel that collection of figures would have any meaning unless one person or one group reviewed each case record and x-rays. The obvious impossibility and impracticability of such a procedure requires no comment.

We cannot, therefore, report on the status of collapse or surgery. In regard to the field of chemotherapy, in these days of preliminary work merely report that despite some encouraging reports, there is no evidence that anyone of the experimental substance has any definite therapeutic effect on pulmonary tuberculosis in the human subject.

We have entered upon a project of more than ordinary magnitude, and we are not sanguine about the success of our undertaking. There is no argument as to its necessity to aid further progress in our work as chest specialists and to relieve some of the almost hopeless confusion in the minds of the general medical profession. We will welcome suggestions, criticism, and assistance. The results will be published from time to time so that the whole fellowship will be conversant with the problem and in a better position to judge progress and results.

Edwin R. Levine, M.D., Chicago, Illinois, *Chairman*
Col. John B. Grow, (MC), Denver, Colo. Hillis L. Seay, M.D., Huntersville, N. C.

Report of the Committee on Occupational Diseases of the Chest

During the year of 1945 and 1946, the Committee on Occupational Diseases of the Chest has been accumulating data from the various states studying their occupational disease laws to determine whether some uniform suggestions might be given to the various states as to changes that would be beneficial both to the employee and to the employer.

Up to the present time this data has not been completely analyzed so that any suggestions can be given as yet. The laws in various states are being changed from time to time always with the view of giving the individual who is not totally disabled some compensation for whatever partial disability he has suffered. Other states who have not had occupational disease laws are now putting them on their statute books.

We hope before long to have all of the data analyzed and compiled so that at the 1947 meeting we can make a detailed report with specific suggestions which might be worked out for the benefit of all concerned in occupational diseases.

Louis Mark, M.D., Columbus, Ohio, *Chairman*
William E. Chester, M.D., Detroit, Mich. R. L. Laney, M.D., Joplin, Missouri
Leopold Bradhy, M.D., New York, N. Y. W. Bernard Yegge, M.D., Denver, Colo.
J. V. Foster, M.D., Harrisburg, Pa. Paul A. Turner, M.D., Louisville, Ky.

Report of the Committee on Chest Diseases in Institutions

(Preliminary Report)

Your Committee on Chest Diseases in Institutions was appointed shortly before the Twelfth Annual Meeting of the College. "Chest Diseases," was advisably used by President Jay Arthur Myers, that findings other than tuberculosis might be included in the anticipated surveys. The work at first will deal primarily with penal and mental institutions.

The sparse reports in the medical literature indicate a high incidence of tuberculosis in penal institutions in the United States. An estimated one per cent of the prison population of 125,000 is said to have active pulmonary tuberculosis.

This disease in mental institutions with its census of nearly 450,000 has a much higher incidence. A conservative estimate places active pulmonary tuberculosis between two to six per cent of hospitalized patients.

Incarcerated inmates and hospitalized mental patients should not become diseased because of their compliance with court commitment orders. The protection of the employees in these highly infested institutions should be of administrative concern. Since nearly all incarcerated inmates are eventually released and a good share of mental patients discharged, the public health aspect is of extreme importance.

There is little uniformity on a national basis in attacking this problem. A survey of the situation in penal institutions was completed in 1944 and is being brought up-to-date. A similar study will be inaugurated for the mental institutions. The Committee will appreciate assistance from any of the physicians associated with either of these types of institutions.

We further express our gratitude for the confidence placed in us to undertake this important study.

O. L. Bettag, M.D., Pontiac, Illinois, *Chairman*
B. B. Bagby, Jr., M.D., Rome, Georgia
Grover C. Bellinger, M.D., Salem, Oregon
George M. Curtis, M.D., Columbus, Ohio
A. A. Leonidoff, M.D., Poughkeepsie, N. Y.

Committee on State Laws for Tuberculosis

(Annual Report)

In accordance with the standing policy of this Committee, we have vigilantly followed the development of tuberculosis control measures in general, and current plans and measures enacted throughout the country in particular. An active file of pertinent data is kept in the office of the Chairman of the Committee. This information is available to members of the College through the office of the Executive Secretary.

In addition, the members of this Committee have made an outline of a *General Code Relating to the Control of Tuberculosis by Modern Means.*

If authorized by the Board of Regents, this outline could be printed and distributed among members of the College and others interested in this endeavor.

The introductory notes of this *General Code Relating to the Control of Tuberculosis by Modern Means* present the reasons and justification of this project.

With the approval of the Committee, respectfully submitted to the Board of Regents.

Andrew L. Banyai, M.D., Wauwatosa, Wisconsin, *Chairman*
Joseph E. Blum, Jr., M.D., Greenwell Springs, La. Willard B. Howes, M.D., Detroit, Mich.
J. George Lange, M.D., New York, New York

GENERAL CODE RELATING TO THE CONTROL OF TUBERCULOSIS BY MODERN MEANS

Introduction:

Inasmuch as in a number of states the tuberculosis control program has not made satisfactory progress in recent years or it is in a confused state of flux or is obsolete and inadequate, an outline of a model plan has been worked out by the Committee on State Laws for Tuberculosis of the American College of Chest Physicians as a reference source for all those interested in this subject.

The material herein presented has been derived from existing modern statutes as well as from many years' experience of the members of this Committee.

It is being offered as a fundamental structure upon which to build a useful and effective machinery of tuberculosis control.

These basic principles should be applied and expanded in an elastic manner and with a liberal perspective so that the new laws and regulations enacted should bring about the best possible results.

Experience has shown that most patients who understand the nature of their disease, the necessity of adequate treatment and the danger it represents to others are willing to cooperate and accept the recommendations of their physician, the public health officer or his representative. There is a small group of persons however, who refuse to accept such recommendations because of ignorance, inability to understand, prejudice, fear, social incompatibility or other mental or emotional traits. Even in these instances, moral persuasion may bring about satisfactory results.

Compulsory methods for the management of individual cases of tuberculosis are rarely required because most people have an aversion to and a fear of legal entanglements. Holding out to these recalcitrant tuberculous persons the existing compulsory laws and regulations will be often sufficient to gain their cooperation.

Outline of essential statutes:

1. The legislature has recognized and declared tuberculosis to be a communicable infectious disease, the control of which requires special measures. The eradication of this disease is dependent upon adequate state laws and upon the full cooperation of the public and the medical profession on the one hand and respective health officers on the other hand. The legislature, therefore, has prescribed certain rules and regulations for the control of this disease and certain penalties for the violation of them.

2. Every physician in the state shall report to the state board of health (on blanks furnished by said board) every person in whom the diagnosis of tuberculosis has been established, within one week after the diagnosis, except in cities where physicians are required by local ordinance to report tuberculosis to the local board of health. It shall be the duty of such health officers to give the list of reported cases to the state depart-

ment of health. The report should show the patient's name, age, sex, race, home address, occupation, names and addresses of persons with whom the patient has been in close contact, and the form and extent of the disease. Every physician attending to a case of active tuberculosis shall be provided by the local health officer or by the state board of health with circulars of information to be given to the tuberculous person. This circular of information shall inform the individual afflicted with tuberculosis of the best methods of treatment of his disease and of the precautions necessary to avoid transmitting the disease to others. The same circular shall be distributed by a public health nurse delegated by the local health officer or by the state board of health to tuberculous persons who have no attending physician.

3. The diagnosis of tuberculosis should be made on the basis of physical, x-ray and laboratory examinations. Sputum or aspirated gastric contents positive for tubercle bacilli are desirable but not indispensable for the tentative diagnosis of tuberculosis. History of exposure to tuberculosis is considered of presumptive diagnostic value in case of suspicion of active tuberculosis. The fact that in about 1 per cent of clinically active cases of pulmonary tuberculosis no positive bacteriologic findings are obtainable should be kept in mind. For this reason, the diagnosis of active tuberculosis may be established in this group of individuals on the basis of other confirmatory data.

4. Any person reasonably suspected of having active tuberculosis in the communicable stage and who through his contact with others is considered a possible source of infection to others in the opinion of a qualified physician and refuses institutional observation and treatment, shall be examined by the local health officer or by a physician delegated by him. This examination shall include tuberculin skin test, x-ray films of the diseased organs or parts, search for tubercle bacilli in the sputum and, if necessary, in the fasting gastric contents. The specimens to be examined shall be taken at intervals of not less than twenty-four hours. No individual suspected of having active tuberculosis of the lungs should be considered free of this disease until at least five sputum specimens, and, if necessary, five fasting gastric specimens are found negative for tubercle bacilli by culture or by guinea pig inoculation. The sputum and gastric specimens may be examined individually or as pooled specimens.

5. Active open (communicable) cases of tuberculosis are best treated in a specialized institution (sanatorium, tuberculosis hospital, etc.). Application blank for admission of the patient to a public institution shall be secured from the respective sanatorium or hospital or from the local health officer. Admission to public institutions shall be approved by the Chief Medical Officer of the institution from the medical standpoint and by the Probate Court or by the County Commissioners or City Aldermen or by their representative from the administrative standpoint. Patients who are non-residents of the county where the public institution is located are classified as state-at-large cases. Their admission to a county or city institution is permissible after the above-mentioned endorsement provided no vacancies are available in a state institution, or the patient's admission is required because of extraordinary circumstances. All expenses accrued for the treatment of such patients are chargeable to the county of the patient's legal settlement or shall be carried jointly by the respective county and the state. A state-at-large case must have legal residence in the state, as defined by the statutes, sometime prior to his admission to a public institution. If the patient

has no legal settlement in the state, he is to be referred to state of his former legal residence.

6. All patients afflicted with active tuberculosis shall be treated free of charge in the respective public institutions of the county, city or state in which they have their legal settlement, except when the patient wishes to pay for part or for all of his treatment or he has a hospital insurance which covers his care. Should he have hospital insurance, it will apply on his care. Any difference between payments through such policy and the charges for his treatment is to be public expense.

7. It is the duty of the local health officer to search, through the services of a private physician, whenever possible, for the source of infection in every case where a new instance of active tuberculosis is identified so as to prevent the further spread of the disease.

8. A patient in a public tuberculosis institution confined with tuberculosis of the lungs in a communicable stage is prohibited from leaving the institution without written permission of the medical officer in charge, unless said patient transfers to another tuberculosis institution, or adequate arrangements are made for his care, treatment and isolation in his home or other premises. Such arrangements must be approved and periodically supervised by the local or state health officer or his representative. If no such approval is given, the premises of such individual who was declared to have tuberculosis in the communicable stage by the medical officer in charge of the respective tuberculosis institution shall be quarantined as long as deemed expedient.

9. The state board of health shall exert every possible effort for the control of tuberculosis through the following means and agencies:

A. Health Commissioner and state health officers so delegated.

B. Tuberculosis Division or a Bureau of Tuberculosis Control or a State Tuberculosis Commission.

C. Full-time Tuberculosis Controller.

D. Ample provisions for supplying printed instructions, precautions and information circulars to local health officers and private physicians attending any person suffering from or exposed to a communicable case of tuberculosis, together with all supplies and materials which are deemed necessary for the prevention of the spread of this disease.

E. Tuberculosis register based on reports received from private practitioners and health officers. Such register shall be maintained for keeping a permanent record of pertinent data relative to persons afflicted with tuberculosis. The state board of health shall have the sole and exclusive control of said register, and shall not permit inspection thereof nor disclose any of its personal particulars except to officials authorized by the law to receive such information.

F. State sanatorium. The number, size and location of such institution to vary according to local and regional circumstances. The sanatorium shall be adequately equipped and staffed according to the standards set by the up-to-date concepts of recognized scientific societies and associations in the field of tuberculosis and hospital management. Convalescent Camps, Convalescent Settlements, Rehabilitation Units or Colonies shall serve individuals released from tuberculosis institutions who are in no need of further treatment but are in no condition to return to the normal compe-

titive way of living. Special institutions for the housing of the so-called maximum benefit patients should be provided. The latter are not eligible for constructive therapeutic intervention according to present day medical knowledge. They are in no need of constant medical and nursing care. Their stay in a standard tuberculosis institution has an undesirable influence upon patients who enter the institution with a better prognosis. The segregation of these maximum benefit patients in special institutions permits them to receive greater privileges in the way of exercise, without interfering with the rest and treatment of patients who require active treatment, medical or surgical. At the same time, custodial care of the maximum benefit cases reduces their per capita cost and allows more provisions and a deservedly greater budget for patients with curable forms of this disease. Institutions for the maximum benefit patients shall be so located that adequate personal facilities and services will be available at all times to protect the best welfare and interest of the patients and the community.

G. For the purpose of avoiding pauperization of individuals or families stricken with tuberculosis, adequate state aid shall be extended to such families or to the dependents of such individuals during their illness and convalescence until complete rehabilitation is achieved.

H. State-owned and operated stationed and traveling diagnostic clinics shall be set up for mass surveys and group surveys. These units aim at the early discovery and treatment of tuberculosis. Their functions shall be closely harmonized with those of existing similar establishments supported and maintained by voluntary agencies or local health departments. Neither shall the work of the state-owned diagnostic clinics interfere with the private practice of medicine in any manner.

I. It shall be the duty and responsibility of the state board of health to make, formulate, promulgate, adopt and enforce necessary and reasonable rules and regulations in accordance with modern principles effectively to cope with the tuberculosis problem and to devise ways and means for restricting and controlling the disease. Whenever and wherever it is feasible, it shall encourage the building of county tuberculosis institutions owned by one, two or more counties, according to local requirements.

J. The state department of health shall sponsor an effective educational campaign through all public and private educational institutions, from grammar to high school and to the university and colleges and an educational campaign of the public in general concerning the dangers and the methods of prevention and control of tuberculosis.

K. Provisions shall be planned and measures shall be carried out by the state health department in the field of industrial hygiene so as adequately to prevent industrial diseases and hazards which are known to be predisposing to tuberculosis.

L. In cooperation with local and federal agencies the state health department shall exert every constructive effort conducive to better housing conditions throughout the state.

M. The state department of health shall encourage and if necessary, financially support competent tuberculosis prophylactic surveys among all patients and employees in general hospitals.

N. Special attention shall be given by the state health department to the development and wider application of the services of well-trained social service workers and medical-social service workers within tuberculosis institutions as well as in connection with clinics, dispensaries, local health departments, mass surveys and group surveys for tuberculosis.

O. The state health department as well as local health units and health officers shall employ adequate number of public health nurses whose duty it shall be effectively to assist in carrying out and supervising activities and measures related to the practical aspects of tuberculosis control.

P. It shall be the duty and responsibility of the state department of health, through its tuberculosis controllers, tuberculosis committee or other corresponding agents or their delegates, to supervise the system of tuberculosis control in its various governmental units, counties, cities, townships, etc., and to stimulate the advancement of pertinent efforts to a progressively higher level.

Q. The state health department shall issue periodically, several times during each year, studies and statistics presenting data which pertain to the public health aspects of tuberculosis, including recent scientific progress in this field. A statistical report covering the state of affairs as pertains to this disease shall be issued by the state health department annually. The periodical as well as the annual report on tuberculosis shall be distributed among practicing physicians and, according to the best judgment of the health officer, among the people of the state for their information so as to effectively promote the interest of the public.

R. Special studies shall be conducted by the state health department for the purpose of accurately ascertaining tuberculosis morbidity and to aid the discovery of endemic regions of the state or endemic sections of large communities.

S. The state health department shall secure the closest and most feasible cooperation and coordination of endeavors with the United States Public Health Service program in the field of tuberculosis.

T. It shall be the duty of the state health department to make every reasonable and practicable attempt toward a more extensive inducement of the private practitioners of medicine to participate in the state-initiated and sponsored anti-tuberculosis campaign.

U. Ample provisions shall be made for establishing and maintaining a close and fruitful cooperation with physicians in private practice and with private, voluntary agencies engaged in anti-tuberculosis activities and in general public welfare work.

V. Arrangements shall be made through the offices of the state department of health for the effective rehabilitation of patients recovering and recovered from tuberculosis. Modern measures in this direction shall be set up on the basis of consultation with authoritative bodies specializing in this work.

10. The local health officer or his representative are directed and authorized to quarantine and placard the home of persons who are reasonably suspected of having tuberculosis in the communicable stage and recalcitrant tuberculous persons whose disease is in the active stage who through their contact with others represent a source of the spread of

the disease and who refuse institutional care and treatment, provided such arrangements are practicable and can be carried out without harm to the members of the respective individual households. The quarantine and placarding of the premises shall be carried out in such manner that the public may be warned against the disease in such persons and households.

— WARNING —
T U B E R C U L O S I S
exists on these premises
Posted by order of

.....

Date *Health Officer*

This notice is posted only when proper precautions are not being taken for the protection of the public health.
This notice must not be removed under a penalty of law, except by a health officer or his representative.

During the period of quarantine the isolation in specific quarters is designated by the health officer.

The quarantine, together with other necessary measures, shall be maintained until such time when, in the judgment of the health officer such quarantine and isolation are no longer necessary. Costs arising from such quarantine are to be covered jointly by the local government unit and the state.

In view of the usually prolonged course of tuberculosis and because of the possible difficulty in administering adequate treatment measures in the patients home, every effort shall be made by the local health officer or his representative to persuade the patient to accept treatment in an institution.

11. Expenditures connected with the building and maintenance of public institutions for the tuberculous shall be financed by a tax levy not to exceed 2 mills per annum on property values, collected by the county treasurer, by the representative of other governmental units, or by the state. This type of taxation may be disregarded when monies are provided through other forms of appropriations, particularly where statutes are enacted for a state subsidy to other than state tuberculosis institutions. Depending upon local circumstances, the state subsidy shall vary from $1 to $3 per day per patient.

12. Any private or philanthropic tuberculosis sanatorium may admit patients referred to it by any county, city or by the state, and said sanatorium to receive the same state subsidy for these patients, provided the amount charged such patients is not higher than the per capita cost of similar institutions, and, provided no accommodations are available in public institutions, or the placement of the patient in a private sanatorium is mandatory because of special circumstances.

13. Persons with active open tuberculosis are permitted to be treated in their homes, provided the local health officer or his representative finds on repeated visits that the case can be satisfactorily isolated so as to prevent the spread of the disease to members of the patient's family or his household or to others in the community. The person so placed must have a room or rooms for his exclusive use.

14. Individuals with tuberculosis in the communicable stage who are treated in their homes shall exercise all necessary precautions to obviate the infection of others with whom they may come in contact. These precautions are as follows:

A. Sputum should be deposited in a paper napkin and deposited in a "5 pound" paper bag or other tight container which is kept closed when not used. The paper bag or similar receptacle is burned when filled with used paper napkins or at least once a day.

B. During coughing or sneezing the patient should hold a paper napkin or similar article of proper size to his mouth and nose. Following this, the napkin is placed in the paper bag. Under no circumstances must the patient cough into the face of others during the active phase of his disease. All infectious excretions and discharges and all infected bed linen should be disinfected. Articles used by the patient are disinfected by immersing them for at least an hour in a 5 per cent solution of carbolic acid or other solutions of equivalent disinfecting value.

C. The patient should have individual eating and drinking utensils. These are sterilized by boiling in water for 5 minutes and kept separate from that of others.

D. Separate towels are provided for the patient.

E. Separate sleeping accommodations, such as own bedroom or sun porch, should be set aside for the patient.

F. Exposure of or contact with children should be scrupulously avoided.

G. Handling of foods, liquids, eating or drinking utensils to be given to others is prohibited.

H. Individuals in attendance of the patient should avoid exposure while the patient is coughing, and should wash their hands thoroughly after handling the patient, his bed or his belongings.

15. No person with an active, communicable form of tuberculosis shall be permitted to attend school, theatres, movies, restaurants, clubs, and social gatherings or use public conveyances or frequent public establishments. It is unlawful to accept employment or to employ individuals with communicable form of tuberculosis as teachers or other school employees, as nurses, attendants, dishwashers, maids, employees in hotels or rooming houses, as post office employees, public transportation workers, barbers, railroad porters, or employees in laundries and beauty parlors, or as food handlers (dairy, creamery, butter factory), breweries, bottling establishments, ice cream parlors, restaurants, bakeries, food stores, butcher shops, grocery stores or as employees in any establishments where drink is prepared or served for public consumption. Teachers, other school employees and food handlers are required to have an x-ray film of the chest taken and interpreted by a qualified physician, as recognized by the State Board of Health. The expense of such examination is to be covered by the School Board or the employer. In case of the teachers and other school employees, no contract should be signed for the Fall semester if such x-ray examination is omitted or the individual in question is reported as having active tuberculosis.

Upon receipt of information or reasonable suspicion that any person so frequenting or so employed is afflicted with tuberculosis, the local or county health officer in whose jurisdiction the case exists shall re-

quire such person to cease such frequenting or employment until by personal examination or by written certification from a legally qualified physician the health officer is satisfied that such person is not suffering from a communicable form of tuberculosis.

Any superintendent, principal or teacher having knowledge of or reasonably suspecting a student, teacher or any other employee of a school or school system of having tuberculosis in the active, communicable form shall prohibit the attendance of such person or persons at a school until the arrest or absence of the suspected disease has been determined and certified by a competent licensed medical practitioner. Provided, however, that such certification must be acceptable to the local or state health officer.

16. Any qualified physician capable of giving standard, adequate examination, the health officer or his deputy shall promptly examine contact cases in the household of a person suffering from active tuberculosis in the communicable stage. Such examination shall be repeated periodically so long as it is reasonably deemed necessary.

17. Inasmuch as most persons with tuberculosis, once they understand the nature of the disease from which they are suffering, are perfectly willing to take all the necessary measures to secure recovery, the cooperative attitude of these individuals should not be destroyed by any threat of compulsion. The most important fundamental aim of tuberculosis control shall be to teach the person afflicted with this disease the necessity of various treatment measures for his recovery and the prevention of the spread of the disease to his family and to others.

18. If the precautions taken or the instructions given by the physician in attendance of a tuberculous patient are, in the opinion of the local health officer, not such as will remove all danger or probability of danger of infection in a reasonable manner to the persons occupying the same house, apartment or premises, the local health officer shall require the attending physician in a letter to advise his patient about additional specific precautionary measures.

19. Whenever an individual suffering from active, communicable form of tuberculosis does not properly carry out the regulations pertaining to the protection of others or who by reason of his uncooperation or carelessness, in the opinion of the local health officer, endangers the public health by continuously and repeatedly ignoring or violating the sanitary restrictions promulgated in accordance with the instructions of the legislature, he may be committed to a tuberculosis institution or to other place approved by the state health officer, through due process of law. Petition for the hospitalization of such patient may be filed with the respective local health officers by any member of the community or resident of the county in which said individual is residing, or by the local health officer on his own initiative or by the state health officer or his representative. The person implicated should be given due notice, not less than seven days, and a hearing at which he or his legal representative may argue the issue. A simultaneous notice shall be sent to the local health officer and to the state health department. After due consideration of the evidence, the Court may commit the recalcitrant individual to one of the available approved institutions for the treatment of tuberculosis (public or private). Hospitalization following such commitment may be discontinued any time at the discretion of the Court; or the minimum length of stay may be set at six months. The maximum length of stay may vary from six months to a

period of time at the end of which the individual's tuberculosis is healed or becomes apparently arrested or inactive (according to accepted standard definitions), so that he no more represents a health hazard to the community. The chief medical officer of an institution where such person is committed should have the privilege of discharging such patient for other bona fide reasons. The chief medical officer shall report the discharge from the institution of every case committed by the Court at once to the respective Court as well as to the health officer of the city, village, township, county or district from which the patient had been admitted. Such report shall contain a full statement of the reasons for discharge.

Any person so committed shall observe all the rules and regulations of such institution. The expense of removal, care and treatment and maintenance of such patient shall be paid jointly by the county in which he has legal residence and by the state. Non-residents of the state shall be removed to their place of legal settlement as soon as their condition permits in case they become public charges. The care and treatment of patients committed through court action should in no way differ from that accorded to others.

20. Any patient committed under the provisions of the law to a tuberculosis institution who fails to observe and obey or who wilfully violates the rules and regulations of the institution, obstructs his own treatment or that of others, or conducts himself in a disorderly manner may be disciplined by the chief medical officer of the institution in the following manner:

1. By placing him apart from other patients (if necessary in a barred room).

2. By depriving him of certain privileges routinely extended to patients, such as radio earphones, attendance of movies in the institution, occupational therapy, etc.

3. By filing a complaint against him in Court for disorderly conduct or vagrancy and by having him committed through due process of law to a penal institution. The latter procedure is permissible only in cases where facilities are available in the penal institutions for the adequate isolation of the patient and for the complete protection of other inmates and the attendents. Nothing in this law shall be construed to prohibit any person so committed from appealing to any Court of jurisdiction for a review of the case. Considerations as to the length of such commitment to a penal institution shall be the same as outlined under paragraph 19. Nothing in this act shall be construed or operate to authorize the health officer or the attending physician to restrict in any manner the individual's right to choose, accept or refuse the method of treatment recommended nor to require any examination of the patient other than physical examination, x-ray examination of the chest or of other parts of the body, as indicated, and search for tubercle bacilli in the sputum or in the fasting stomach contents, as they are carried out in the standard institutional treatment of tuberculous patients in general. These especially equipped and staffed prisons shall be used for the isolation of committed patients who cannot be managed in standard tuberculosis institutions, for non-cooperative patients who habitually transgress institutional regulations, who are also otherwise incompatible and un-

manageable, and for patients who frequently leave the institution against medical advice and keep themselves in circulation in the community and continuously transmit their disease to others.

21. Because of the high incidence of active tuberculosis in prisoners in penal institutions, plans shall be made and proper arrangements carried out for establishing a modern, well-equipped and staffed tuberculosis unit at least in one of the penal institutions in each State. This tuberculosis unit shall have complete and adequate set-up for the isolation, care and treatment of the tuberculous prisoners from various sections of the state.

22. Because of the high incidence of tuberculosis in public psychiatric institutions, it shall be the duty and responsibility of the state health officer to sponsor and supervise annual x-ray surveys and other necessary diagnostic investigations of inmates of such institutions. Arrangements can be made for carrying out such annual surveys under the control of the local health officer or under the sponsorship of voluntary anti-tuberculosis agencies. The survey shall be undertaken by a competent medical staff, selected by the proper authorities. Provisions shall be made for the adequate segregation and treatment of the tuberculous insane .For this purpose a special unit of an institution for the insane should be set aside or a special institution should be constructed for the tuberculous insane which is large enough to accommodate all patients belonging to this group from throughout the state.

23. The local health officer or his representative shall be delegated to make periodic surveys of the premises where a tuberculous person is quarantined to see that the requirements of the quarantine are duly observed.

24. The local health officer or any private physician delegated by him shall examine all members of the household of the tuberculous person whose home or residence is quarantined for the purpose of finding possible early cases of tuberculosis. These examinations should be carried out without expense to the individuals involved.

25. It is the responsibility of the local or state health officer, his representative or any private physician delegated by him to instruct the person with tuberculosis who is segregated in his home in matters pertaining to the prevention of the spread of tuberculosis and see to it that they are properly carried out. Particular attention shall be paid to the prompt disposal and disinfection of sputum and all articles soiled with it, of handkerchiefs, towels, cloths or paper soiled therewith and of eating utensils used by the patient.

26. Any person who fails or refuses to comply with the orders of the health officer concerning the quarantine and the appropriate protection of others from tuberculosis during his isolation shall be deemed guilty of misdemeanor and upon filing charges with the Court shall be punished according to the existing statutes, including commitment to an institution specializing in the treatment of tuberculosis or to such other institution where adequate care and treatment are available.

27. When the health officer having jurisdiction finds that the environmental conditions of an individual who is afflicted with tuberculosis in the communicable stage are not suitable for proper isolation and contagious disease control or such person is unable to conduct himself and to live in a manner so as not to expose members of his family or household or other persons with whom he may be associated, to the

danger of infection, all minor children living on the premises of said individual shall be removed through due process of law to a public institution or foster home. The removal and such disposition with the children are maintained until such time when the individual afflicted with tuberculosis enters a sanatorium or hospital for the treatment of tuberculosis as advised by the local health officer, or until in the opinion of the Court it is deemed necessary as determined on the basis of the given circumstances of the individual in question. The aim of the removal of minor children from the home of a tuberculous person is to protect their health. These provisions of the law shall be carried out for the greatest benefit and with the least possible detriment to the welfare of the family of the tuberculous person. Following the receipt of a pertinent petition of the health officer, the Court shall fix a date for hearing of the case. A notice of the hearing shall be served personally, at least seven days before the hearing, upon the person afflicted with tuberculosis and alleged to be unable to observe the required rules, regulations and precautions for the prevention of the spread of his disease to others.

28. When the superintendent or chief medical officer of a tuberculosis institution of a government unit (state, county, city) notifies the proper authorities that the institution is filled to capacity and that there are persons on the waiting list who are in need of treatment for tuberculosis, the respective authority (state, county or city health officer, or the Board of Supervisors or Commissioners or their representative) may designate any public or private institution in the state which receives patients suffering from tuberculosis. All patients so placed shall receive the same care and treatment as accorded to similar patients in a recognized specialized institution for the treatment of this disease. It is the responsibility of the health officer of the governmental unit or his representative to ascertain periodically that such care and treatment of these patients shall be covered by the state or jointly by the respective governmental unit and the state. The governmental agency having charge of the control of tuberculosis is authorized to contract with public or private institutions for the accommodation and treatment of such tuberculous patients, provided these institutions are in the judgment of the respective medical authorities adequately equipped and staffed for the proper treatment of this disease. The contract shall arrange payments from the treasury of the governmental units for each patient per day in the form of monthly payments, and may be renewed, according to local needs, not later than every two years.

29. In case of death of a tuberculous person outside of an institution the premises wherein death occurred shall be promptly cleansed and disinfected according to the requirements of the health laws of the state. When such disinfection is not carried out within 48 hours after death of the tuberculous person, the local health officer may order the placarding of the place by having a placard in words substantially as follows placed on the door of the infected apartment or premises:

> Tuberculosis is a communicable disease. These premises have been occupied by a consumptive and may be infected. They must not be occupied until according to the order of the health officer their disinfection has been completed. This notice must not be removed under penalty of the law, except by a duly authorized official.

Report of the Executive Secretary

You have listened this morning to a report of progress which has been given to you by the chairmen of the different councils and committees of your College. There is very little that I can add to what you have already heard. There are, however, a few interesting facts which might bear repetition, and during the few minutes allotted to me, I will attempt to briefly summarize the highlights of the College during the past year.

At the outset, I would like to pay respect to Dr. Harry Warren, the Chairman of the Arrangements Committee for this meeting. He has successfully carried out one of the most difficult assignments ever given to a Fellow of the College. To him, his efficient secretary, and to the other members who served on committees, all of us extend our thanks and appreciation.

It is only fitting that we pay our respects to Dr. Ralph C. Matson, who more than anyone else was responsible for the rejuvenation of the College journal, *Diseases of the Chest*, and who, during some of the most trying years of the College, brought to the chest specialists of the world a journal which has come to be respected and recognized as the outstanding publication in the field of chest disease. Certainly, this was not a task which could be easily accomplished. Men with less fortitude would have been discouraged but not so Dr. Matson. He had the vision and the courage to carry out during the war years, all of the ideas which were so well planned by him. These plans required the cooperation of the members of the Editorial Board and here must be mentioned Dr. Chas. M. Hendricks, who not only was the pioneer and the first Editor-in-Chief of the journal, but who, after relinquishing the post of Editor-in-Chief, served loyally and effectively as a member of the Editorial Board, and was and still is one of the bulwarks of the journal. Upon the death of Dr. Matson, the College was indeed fortunate to have Dr. Jay Arthur Myers take over the reins and carry on where Dr. Matson left off. Additional strength was added to the Editorial Board in the election of such capable editorial assistants as Dr. Andrew L. Banyai and Dr. Richard H. Overholt. They, together, with Dr. Chas. M. Hendricks and Dr. Champ H. Holmes, whose untimely death I learned about while enroute to San Francisco, rounded out an efficient and conscientious Board of Editors. The Associate and Corresponding Editors lend balance to the journal so that competent advisors and specialists in the various branches of diseases of the chest can be called upon when their help and advice is needed.

We are happy to report that through the efforts of the Ways and Means Committee of the journal, whose program is ably guided by our Past President, Dr. J. Winthrop Peabody, there has been an increase in our advertising revenue. This revenue is urgently needed to help defray the cost of publication, and Dr. Peabody, I am sure, will welcome the help of all of the members of the College in assisting the Ways and Means Committee to do a still better job.

The circulation of the journal has also increased during the past year, and as the membership of the College is extended into other countries, the journal likewise extends its list of readers.

The College is rapidly completing its plans for a world organization. During the past year, two new councils have been added, namely, the Council on European Affairs, and the Council on Pan Pacific Affairs.

These, added to the earlier Council on Pan American Affairs, now complete the structure for a World Society of Chest Physicians. The most recent chapter to be organized in a foreign country has been the Greek Chapter. Here, congratulations are to be extended to Dr. Peter A. Theodos, who served our country in the European Theatre and in Greece under the auspices of UNRRA. He saw an opportunity to perform a service for the College and he took advantage of the opportunity to organize the Greek Chapter while he was in Athens.

Fellows of the College, who have contact with chest specialists in other countries can well serve the Council on International Affairs of the College by making known to the members of the council any information which will be of benefit to the World Society of Chest Physicians.

Here, in the United States of America, new College Chapters have been founded this year, and we are happy to report the organization of the Maryland-District of Columbia Chapter, the Virginia Chapter, and the reorganization of the Southwestern Chapter into the Arizona Chapter of the College.

The Conference on College Chapter Officials of the College is now a well organized and functioning body. The officials of the chapters, past and present, are capable leaders and their accomplishments should serve as an inspiration for other Fellows of the College. The College Chapters are proving grounds for future officers of the national and international society. Younger men, and particularly those members coming out of the service, are urged to avail themselves of the opportunities which the College Chapters offer. Through their interest and devotion to the College and its program, will their achievements be recognized. The College is a democratic organization, and every member who wishes to work in the interest of the society can find an opportunity to do so.

Two new conferences are to be organized at this Twelfth Annual Session of the College, namely, the Conference of Medical Directors of Tuberculosis Sanatoria and Hospitals, under the Council on Sanatorium Standards and Administration, and the National Conference of Tuberculosis Committees under the National Council of Tuberculosis Committees. Every medical director and superintendent of a tuberculosis sanatorium or hospital will have an opportunity through the conference to make known his ideas for improving the standards of our sanatoria and hospitals. Through this conference, he will have every opportunity to work collectively with the other physicians whose interests lie in a parallel field of endeavor.

Eight years ago, in this very city, Dr. Frank Walton Burge, read a paper before the open session of the American Medical Association, and at that time, he advocated the organization of a tuberculosis committee in every state and in every county medical society. He termed this plan, "The Pennsylvania Plan," and Pennsylvania was one of the first states in the union to report the appointment of a tuberculosis committee in practically every county medical society in the state. This plan was given freely to the College, and a National Council of Tuberculosis Committees was organized to carry the plan forward. That the council has done an effective piece of work is evidenced by the fact that today there are tuberculosis committees in forty state medical societies, the District of Columbia, and in a large number of county medical societies.

Undergraduate and Postgraduate Medical Education in diseases of the chest has received and is receiving the attention of the College councils

which are concerned with these activities. A book for the teaching of tuberculosis to the medical students is soon to be published by the Council on Undergraduate Medical Education of the College. Dr. Edward W. Hayes, the Chairman of the council, has labored long and diligently to accomplish this task. That it is soon to become a reality is a compliment to Dr. Hayes and to the members of his council.

The Council on Postgraduate Medical Education has recently conducted the first Postgraduate Course in Diseases of the Chest under the auspices of a College Chapter. This course was given at the Michael Reese Hospital, Chicago, under the auspices of the Illinois Chapter of the College. Twenty-five physicians from seventeen states and the Philippine Islands registered for the course. It is planned to repeat the course annually, and other College Chapters will be encouraged to organize similar courses.

A model law for the control of tuberculosis has been formulated by the College Committee on State Laws for Tuberculosis. This law is worthy of study and it can well be adopted as the universal law to be enacted for tuberculosis control.

Data for the 1946-1947 Directory of the College is now being compiled at the College offices. The new Directory will contain some 2000 names as compared with 1255 names published in the 1943 Directory,—an increase of approximately 750 members in three years.

As usual, the scientific programs which are presented at the College meeting, are prepared with a great deal of forethought. Each program committee has before it, the efforts of its predecessors and it is not an easy task to improve upon those excellent programs. This year has been no exception, and the Scientific Program Committee under the chairmanship of Dr. Minas Joannides is to be complimented for arranging the splendid program being presented here in San Francisco.

The College has been the champion of the doctors who feel the need for having an American Board of Diseases of the Chest. As you all know, it is not an easy task to convince the officials of the other specialty boards that the chest specialists should have a board of their own. Some of the physicians who specialize in diseases of the chest, and who would logically be expected to support a movement for the establishing of a Board on Diseases of the Chest, are insisting that chest specialists first be certified by the American Board of Internal Medicine, and then be given an additional examination in chest diseases. At present, the "Sub-Board" certifies doctors in "Tuberculosis". Irrespective of whether you remove the term "Sub-Board" or not, it still remains a fact that any board which is subordinate to some other board will be subjugated into the realm of a sub-specialty. If diseases of the chest is to command the same attention which is accorded to the other specialties, then it *must* be accepted on an equal basis with all other medical and surgical specialties. This can only be accomplished if there is a fully accredited Board of Diseases of the Chest. We will, therefore, continue to make our demands known to the proper agencies in the hopes of accomplishing this objective at the earliest possible date.

Until such time as a Board on Diseases of the Chest is formed and recognized the College will through its Board of Examiners qualify its own members for Fellowship in the College by examination. The standards which the Board of Regents have set for membership in the College will be maintained.

In closing, I want to pay my respects to all of the officers of the

College, and to our staff at the Executive Offices, for without their loyal support and encouragement, this report of progress could not have been made to you this morning.

Murray Kornfeld, *Executive Secretary.*

Report of the Nominating Committee

President-Elect: Maj. Gen. S. U. Marietta, Washington, D. C.
First Vice-President: Dr. Richard H. Overholt, Brookline, Mass.
Second Vice-President: Dr. Louis Mark, Columbus, Ohio.
Secretary-Treasurer: Dr. Minas Joannides, Chicago, Illinois.

Regents Dist. No.		*Term Expires*
2	Dr. Nelson W. Strohm, Buffalo, New York	1949
3	Dr. C. Howard Marcy, Pittsburgh, Pennsylvania	1948
4	Dr. Dean B. Cole, Richmond, Virginia	1949
6	Dr. William A. Hudson, Detroit, Michigan	1949
7	Dr. James H. Stygall, Indianapolis, Indiana	1948
9	Dr. Paul A. Turner, Louisville, Kentucky	1948
10	Dr. Andrew L. Banyai, Milwaukee, Wisconsin	1949
11	Dr. Carl H. Gellenthien, Valmora, New Mexico	1948
12	Dr. Charles J. Koerth, Kerrville, Texas	1948
14	Dr. Frederick Slyfield, Seattle, Washington	1949

The Nominating Committee recommends that the present Regents in countries other than the United States should be re-elected.

Governors		*Term Expires*
Alabama	Dr. Kellie N. Joseph, Birmingham	1948
California	Dr. John C. Sharp, Salinas	1948
Connecticut	Dr. Cole B. Gibson, Meriden	1948
Delaware	Dr. Gerald Beatty, Wilmington	1949
Georgia	Dr. Carl C. Aven, Atlanta	1948
Illinois	Dr. Robert K. Campbell, Springfield	1948
Indiana	Dr. Robert A. Staff, Rockville	1949
Iowa	Dr. J. Carl Painter, Dubuque	1949
Kentucky	Dr. Turner Woodson, Louisville	1949
Louisiana	Dr. Alton Ochsner, New Orleans	1948
Massachusetts	Dr. Hubert A. Boyle, Middleton	1948
Michigan	Dr. Willard B. Howes, Detroit	1947
Minnesota	Dr. Karl H. Pfuetze, Cannon Falls	1948
Mississippi	Dr. Robert E. Schwartz, Hattiesburg	1948
Missouri	Dr. Herbert L. Mantz, Kansas City	1948
Montana	Dr. Frank I. Terrill, Deer Lodge	1949
Nebraska	Dr. John F. Allen, Omaha	1949
New Hampshire	Dr. Robert B. Kerr, Manchester	1949
New Jersey	Dr. Henry M. Collier, Grenloch	1948
New Mexico	Dr. Robert O. Brown, Santa Fe	1949
New York	Dr. George Foster Herben, Yonkers	1948
Oklahoma	Dr. Robert M. Shepard, Tulsa	1949
Oregon	Dr. James M. Odell, The Dalles	1949
Pennsylvania	Dr. Louis Cohen, Philadelphia	1949
Rhode Island	Dr. U. E. Zambarano, Wallum Lake	1949
South Carolina	Dr. R. Kyle Brown, Greenville	1949
South Dakota	Dr. William L. Meyer, Sanator	1949
Tennessee	Dr. David H. Waterman, Knoxville	1948
Utah	Dr. William C. Walker, Salt Lake City	1948
Vermont	Dr. Roscoe E. Avery, Barre	1948
Wisconsin	Dr. Carl O. Schaefer, Racine	1949
Wyoming	Dr. Carleton O. Anton, Sheridan	1948

The Nominating Committee recommends that the present Governors in the United States Possessions be re-elected.

Governors in U. S. Government Services		*Term Expires*
U. S. Army	Maj. Gen. S. U. Marietta, Washington, D. C.	1947
U. S. Navy	Comdr. Sydney A. Britton, Washington, D. C.	1947
U. S. Public Health Service	Dr. Herman E. Hilleboe, Washington, D. C.	1949
U. S. Veterans Administration	Dr. Roy A. Wolford, Washington, D. C.	1949

The Nominating Committee recommends that the present Governors in countries other than the United States be re-elected.

Note: Regents and Governors are elected for a period of three (3) years. One third of these officers come up for election each year. Due to the fact that the annual meeting of the College for 1945 was cancelled, two-thirds of the Governors and Regents were elected in 1946. Those whose terms of office were to expire in 1945 have been elected to office until 1948.

Harry C. Warren, M.D., San Francisco, California, *Chairman*
Benjamin Brock, M.D., Oteen, North Carolina Irving Willner, M.D., Newark, New Jersey

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Resolution

WHEREAS, One of the objectives of the American College of Chest Physicians is to promote investigation and research in the medical aspects of diseases of the chest (Article 2, College By-Laws),

BE IT RESOLVED, That the Board of Regents of the American College of Chest Physicians establish a Council on Scientific Research in Diseases of the Chest.

It is recommended that the procedure as prescribed in the College By-Laws (Article 10) for the establishing of councils of the College be followed.

Respectfully submitted,
Charles M. Hendricks, M.D.

Dr. A. L. Banyai, Milwaukee, Wisconsin, moved its adoption. It was seconded by Dr. Paul A. Turner, Louisville, Kentucky, and unanimously approved.

Resolution

WHEREAS, An invitation to send delegates to the 7th Pan American Congress of Tuberculosis at Lima, Peru, March 17-22, 1947, has been extended to the American College of Chest Physicians by Dr. Ovidio Garcia Rosell, President of the Congress,

WHEREAS, The College previously participated in the 6th Pan American Congress of Tuberculosis held in Havana, Cuba in January, 1945,

WHEREAS, These important Congresses are attended by delegates from all of the Latin American republics and by societies in the United States which are concerned with tuberculosis,

WHEREAS, The activities of the College in the Latin American countries have been accelerated during the past five years and at present extend into 21 countries in the western hemisphere with a membership of 296,

BE IT RESOLVED, That the Board of Regents designate Dr. Chevalier L. Jackson, Chairman of the Council on Pan American Affairs of the College, Dr. Jay Arthur Myers, Editor-in-Chief of the College journal, "Diseases of the Chest," and Mr. Murray Kornfeld, Executive Secretary of the College, to represent the American College of Chest Physicians at the Congress,

BE IT FURTHER RESOLVED, That Mr. Murray Kornfeld, the Executive Secretary of the College, be authorized to visit Bolivia, Chile, Argentina, Paraguay, Uruguay, Brazil and Venezuela, following the Congress at Lima, to promote the interests of the College in those countries.

BE IT FURTHER RESOLVED, That the sum of $2500.00 be set aside from the general fund of the College for the expenses of the three delegates to Peru.

Dr. Donato G. Alarcon, Regent of the College from Mexico, proposed that the resolution be amended to include Dr. Leo Eloesser, Vice-Chairman of the Council on Pan American Affairs as one of the delegates and that a sufficient sum of money be allocated from the general fund to defray his expenses to the Congress at Lima, Peru.

Dr. Paul A. Turner, Louisville, Kentucky, moved the adoption of the resolution and the amendment. It was seconded by Dr. Charles M. Hendricks, El Paso, Texas, and unanimously passed.

Resolution

WHEREAS, The activities of the American College of Chest Physicians have increased during the past five years,

WHEREAS, This expanded program has necessitated the hiring of additional personnel at the headquarters office of the College.

WHEREAS, The operating expenses of the College, namely, salaries, printing, rent, and other College needs, have increased in cost during the past five years,

WHEREAS, The annual dues and other income which the College now receives will not be adequate to meet the budget of the College for the current fiscal year,

BE IT RESOLVED, That annual dues in the College be advanced from $10.00 to $15.00 per year, effective January 1, 1947,

BE IT FURTHER RESOLVED, That this advance in dues apply only to members of the College in the United States of America, and that the annual dues of $10.00 per year be maintained for members residing in the United States Possessions and in countries other than the United States of America.

Dr. J. Winthrop Peabody, Washington, D. C., moved its adoption. It was seconded by Dr. E. W. Hayes, Monrovia, California, and unanimously passed.

Resolution

WHEREAS, The College has grown into an international society of two thousand members and it is not always possible to obtain a sufficient number of hotel accommodations for our annual meetings,

WHEREAS, In accord with the College By-Laws, Article IX, Section 1, we are obliged to hold our annual meeting "....immediately preceding or immediately following the meeting of the American Medical Association, as may be designated by the Board of Regents, and in the same city as that meeting, for the election of officers and for the transaction of such other business as may be necessary,"

BE IT RESOLVED, That the By-Laws of the College be amended so that the Board of Regents will have the authority to change the place and dates of the annual College meeting if conditions necessitate such action.

Dr. H. I. Spector, St. Louis, Missouri, moved its adoption. It was seconded by Dr. Chas. M. Hendricks, El Paso, Texas, and unanimously adopted.

Convocation for Life Members

The following Fellows of the College have submitted applications for Life Membership. A remittance in the proper amount, as established by the Board of Regents of the College, has accompanied each application:

John F. Briggs, St. Paul, Minnesota
William LeRoy Dunn, Washington, D. C.
Irvin R. Fox, Eugene, Oregon
Carl H. Gellenthien, Valmora, New Mexico
Edward W. Hayes, Monrovia, California
Minas Joannides, Chicago, Illinois
Louis Mark, Columbus, Ohio
Fred M. F. Meixner, Peoria, Illinois
Richard H. Overholt, Brookline, Massachusetts
J. Winthrop Peabody, Washington, D. C.
Joseph C. Placak, Cleveland, Ohio
Otto Carl Risch, New York, New York
Otto Charles Schlack, Oak Forest, Illinois
Paul A. Turner, Louisville, Kentucky
Leon Gilbert Woodford, Everett, Washington

Be it proposed that the above-mentioned physicians be constituted Life Members of the College, and that they be awarded their Life Membership Certificates at the Convocation to be held at the Sir Francis Drake Hotel, San Francisco, Sunday, June 30, 1946. In the event that a Life Member is not present to receive his certificate, the Executive Secretary of the College is authorized by the Board of Regents to deliver the certificate to him via mail or by any other convenient method.

Respectfully submitted,

Joseph C. Placak, M.D.,
Chairman, Board of Regents.

Convocation for Fellows

The following physicians in the United States of America and Canada have been admitted to Fellowship in the American College of Chest Physicians, and are eligible to receive their Fellowship Certificates which are to be awarded at the Convocation to be held at the Sir Francis Drake Hotel, San Francisco, Sunday, June 30, 1946:

Ralph H. Adams, Boston, Massachusetts
Arnold Albert, Washington, D. C.
Norman L. Anderson, Black Mountain, North Carolina
Bartus T. Baggott, Baltimore, Maryland
William Harold Barron, Detroit, Michigan
Warren A. Beasley, Deer Lodge, Montana
Charles J. W. Beckwith, Halifax, N. S.
Floyd C. Beelman, Topeka, Kansas
David Biber, Union, New Jersey
Brian B. Blades, Washington, D. C.
John S. Bouslog, Denver, Colorado
Otto C. Brantigan, Baltimore, Maryland
Charles Brasher, Mt. Vernon, Missouri
John F. Briggs, St. Paul, Minnesota
Lemuel R. Broome, Danville, Virginia
Ethan Allen Brown, Boston, Massachusetts
Milton H. Brown, Toronto, Canada
Paul C. Bruce, Legion, Texas
Paul C. Burnett, Glencliffe, New Hampshire
David M. Caldwell, Santa Barbara, California
Charles A. Castle, Cincinnati, Ohio
Alice A. Challen, Alameda, California
Archibald C. Cohen, Aspinwall, Pennsylvania
Charles Cramer, Jackson Heights, New York
John A. Cremer, Denver, Colorado
Chester G. Crist, Gettysburg, Pennsylvania
Harry M. Crystal, Chicago, Illinois
Hugo T. Cutrera, Chicago, Illinois
Herman S. Cutler, New Haven, Connecticut
Edgar W. Davis, Washington, D. C.
Dominic A. DePinto, Chicago, Illinois
Roland Desmeules, Quebec, P. Q., Canada
Norman Diamond, Bronx, New York
Gordon A. Diddy, Ahwahnee, California
Richard H. Dieffenbach, Newark, New Jersey
Ralph Adam Dorner, Iowa City, Iowa
Howard K. Edwards, Miami, Florida
Leo Eloesser, San Francisco, California
Arthur G. Falls, Chicago, Illinois
James F. Flattery, New York, New York
Bernard Friedman, Koch, Missouri
Leon H. Feldman, Asheville, North Carolina
Robert G. Ferguson, Fort Qu'Appelle, Sask.
Frank R. Ferlaino, Brooklyn, New York
John B. Floyd, Richmond, Kentucky
Samuel James Forrest, Toronto, Ontario
James O. Greenwell, Redwood City, California
Gerald D. Guilbert, Wood, Wisconsin
Justin E. Gaines, Tucson, Arizona
Saul Gordon, New York, New York
Frank G. Hammitt, Peoria, Illinois
Philip W. Hardie, Hamilton, Ontario
James T. Harkness, Berkeley, California
Edgar Clay Harper, Richmond, Virginia
S. Jackson Hawkins, Kitchener, Ontario
Cyrus E. Hawks, Rockville, Maryland
Joseph E. Hiltz, Halifax, Nova Scotia

Fernand Hebert, Montreal, Quebec
Leon H. Hirsh, Milwaukee, Wisconsin
Henry A. Hudson, Marblehead, Massachusetts
Felix A. Hughes, Jr., Memphis, Tennessee
Meyer W. Jacobson, Baltimore, Maryland
Thomas R. Jones, Houston, Texas
Robertson O. Joplin, Louisville, Kentucky
Albert Kaplan, St. Louis, Missouri
Harry L. Katz, New York, New York
Edward M. Kent, Bethesda, Maryland
Arthur S. Kimball, Jr., Pontiac, Michigan
Richard King, Atlanta, Georgia
Edwin G. Kirby, LaGrande, Oregon
Robert W. Kirkby, Prince Albert, Sask.
Emanuel Klosk, Newark, New Jersey
Lassalle Laberge, Sherbrooke, Quebec
Leo J. Latz, Chicago, Illinois
David F. Loewen, Decatur, Illinois
Solomon Lubin, New York, New York
Horace Macintyre, Toronto, Ontario
Alexander S. Mack, Oak Harbor, Ohio
Robert L. McCracken, Nashville, Tennessee
Gordon J. McCurdy, LaHonda, California
Clifford C. McLean, Kitchener, Ontario
George R. Meneely, Nashville, Tennessee
William L. Meyer, Sanator, South Dakota
Claude G. Milham, Hamlet, North Carolina
J. A. Millet, Montreal, Quebec
Edward J. Nagoda, Tucson, Arizona
Alton Ochsner, New Orleans, Louisiana
F. Learn Phelps, Ste. Agathe des Monts, Quebec
Glenroy N. Pierce, San Francisco, California
Frank E. Pope, Astoria, Long Island, New York
John Karl Poppe, Portland, Oregon
Herbert E. Pugsley, Toronto, Ontario
David E. Quinn, Oteen, North Carolina
Paul Rabinowitz, Hamilton, Ontario
Theodore N. Rafferty, Albuquerque, New Mexico
Bret Ratner, New York, New York
Allen D. Riemer, Denver, Colorado
John S. Robertson, Yormouth, Nova Scotia
William L. Rogers, San Francisco, California
Samuel S. Romendick, Koch, Missouri
Albert H. Rose, Harvey, Illinois
Raymond S. Rosedale, Canton, Ohio
Charles B. Ross, Gravenhurst, Ontario
Elliot A. Rouff, Los Angeles, California
Kent Salter, Paterson, New Jersey
Herman Samuels, Long Island City, New York
C. Gerald Scarborough, San Jose, California
Benjamin Schartz, Bronx, New York
Benjamin Schneider, Danville, Pennsylvania
Raymond L. Schwartz, Arlington, Virginia
David Shapiro, Aberdeen Proving Grounds, Maryland
Charles A. Shepard, Denver, Colorado
David S. Sherman, Brookline, Massachusetts
Clarence Siegel, St. Paul, Minnesota
David M. Skilling, Jr., St. Louis, Missouri
Edwin J. Simons, Swanville, Minnesota
Thaddeus M. Sieniewicz, Halifax, Nova Scotia
Charles H. C. Smith, Bethesda, Maryland
Charles H. Speir, Oteen, North Carolina
Leon J. Spitz, New York, New York
Albert E. Steer, Alliance, Nebraska
Marguerite G. Stemmermann, Huntington, West Virginia
Herman D. Stevens, Worcester, Massachusetts
Lawrence A. Taugher, Louisville, Kentucky

Charles F. Taylor, Norton, Kansas
George W. Taylor, San Diego, California
Allen D. Temple, St. Hyacinthe, Quebec
J. Warrick Thomas, Richmond, Virginia
Marcel Verschelden, Montreal, Quebec
William F. Wagner, San Francisco, California
Ernest F. Wahl, Thomasville, Georgia
Rowland H. Walker, Jr., Martinsville, Virginia
David H. Waterman, Knoxville, Tennessee
Herman Weissman, Legion, Texas
George A. Welchons, Richmond, Virginia
Clarence A. Wicks, Toronto, Ontario
J. N. Wilson, Rutland Heights, Massachusetts
Daniel Yellin, San Francisco, California
Henry Young, New York, New York

Be it proposed that the above-mentioned physicians be constituted Fellows of the College, and that they be awarded their Fellowship Certificates at the Convocation to be held at the Sir Francis Drake Hotel, San Francisco, Sunday, June 30, 1946. In the event that a Fellow is not present to receive his certificate, the Executive Secretary of the College is authorized by the Board of Regents to deliver the certificate to him via mail or by any other convenient method.

Respectfully submitted,

Joseph C. Placak, M.D.,
Chairman, Board of Regents.

Report of the Historian

Since our last meeting, which was held in Chicago in June 1944, the following Fellows and Members of the American College of Chest Physicians have passed away. May we stand in silent reverence while these names are recorded in the annals of our College.

Alexander William Adamski, Racine, Wisconsin
Vitaly John Alexandrov, Rutland, Massachusetts
Isaac James Archer, Black Mountain, North Carolina
Osbourne Orlando Ashworth, Richmond, Virginia
William Frederick Bennett, Verona, New Jersey
Roscoe Patrick Carney, Davenport, Iowa
Gabriel Carucci, Brooklyn, New York
Ferdinand Chenik, Detroit, Michigan
Bascomb Lanier Chipley, Chillicothe, Ohio
Charles Hartwell Cocke, Asheville, North Carolina
Guy Clifford Emery, Los Angeles, California
M. James Fine, Newark, New Jersey
Adelbert Louis Gramsch, Ridgewood, New Jersey
John Dee Jackson, Kerrville, Texas
Charles Samuel Kibler, Tucson, Arizona
Ralph Charles Matson, Portland, Oregon
Gustave Leonard McClellan, Detroit, Michigan
Charles Wilson Mills, Tucson, Arizona
Harold Francis Parker, Sunmount, New York
Maximilian A. Ramirez, New York, New York
Victor Strong Randolph, Phoenix, Arizona
Hugh Fay Ringo, Milwaukee, Wisconsin
Benjamin A. Shepard, Kalamazoo, Michigan
Michele Pietro Sicca, Paterson, New Jersey
Angel B. Trinidad, Manila, Philippine Islands

Champ H. Holmes, M.D., *Historian.*

Reorganization of Regional Districts

At the semi-annual meeting of the Board of Regents of the American College of Chest Physicians held at St. Louis, Missouri, November 13, 1944, a resolution was adopted by the Board authorizing the re-organization of several regional districts to permit a better representation of the states in those districts on the Board of Regents. In accordance with this proposal the regional district have been re-organized as follows:

Dist. No.	
1	New England States
2	New York State
3	Pennsylvania, New Jersey, Delaware
4	Maryland, Virginia, West Virginia, District of Columbia
5	Florida, Georgia, North and South Carolina
6	Michigan and Ohio
7	Indiana and Illinois
8	Arkansas, Kansas, Missouri, Oklahoma
9	Alabama, Kentucky, Tennessee, Mississippi, Louisiana
10	North and South Dakota, Wisconsin, Iowa, Minnesota, Nebraska
11	Colorado, Utah, New Mexico, Wyoming
12	Texas
13	Arizona, California, Nevada
14	Oregon, Idaho, Montana, Washington

COUNCIL ON POSTGRADUATE MEDICAL EDUCATION

The Council on Postgraduate Medical Education of the College is pleased to report the adoption of the following resolution introduced by Dr. Herbert E. Wells, Erie, New York, to the House of Delegates of the Medical Society of the State of New York, meeting at New York City, April 29 to May 1, 1946.

> "WHEREAS, the House of Delegates' meeting in October, 1941, passed a resolution to have a symposium on thoracic diseases at its 1942 convention; and
>
> "WHEREAS, in the House of Delegates' meeting in October, 1945, the House of Delegates passed a resolution to have a session on chest diseases; and
>
> "WHEREAS, at the present time, both nationally and particularly in the State of New York, there is a very definite effort to increase interest and activity in the eradication of tuberculosis; and
>
> "WHEREAS, it is a well-known fact that the General Practitioner sees the patient with tuberculosis first, and it is, therefore, most important that he be familiar with chest diseases, and particularly tuberculosis; therefore, be it
>
> "RESOLVED, that the present House of Delegates assert its interest in thoracic diseases, particularly tuberculosis, by establishing another session on chest diseases to be given at the 1947 annual meeting of the Medical Society of the State of New York."

This resolution was approved by the Reference Committee and unanimously adopted by the House of Delegates of the Medical Society of the State of New York. The Medical Society of the State of New York and the members of the College in New York State are to be congratulated upon this worthy accomplishment. Our Council wishes to pay particular tribute to Dr. Nelson W. Strohm, Buffalo, New York, for his deep interest and assistance in promoting this resolution.

J. Winthrop Peabody, M.D., *Chairman,*
Council on Postgraduate Medical Education.

College Chapter News

SEMI-ANNUAL MEETING, BOARD OF REGENTS

The Semi-Annual Meeting of the Board of Regents of the College will be held at the Hotel Alcazar, Miami, Florida, on Sunday, November 3, 1946.

SOUTHERN CHAPTER

The Southern Chapter, American College of Chest Physicians, will hold its annual meeting at the Hotel Alcazar, Miami, Florida, November 4, 1946. The following program will be presented:

Scientific Session
Paul A. Turner, M.D., F.C.C.P., Vice-President, Southern Chapter, American College of Chest Physicians, *presiding.*

Pulmonary Heart Disease (lantern slides),
William Sodemann, M.D., New Orleans, Louisiana.

The Office Use of Aerosols and Gases with Notes on the Development and Use of New Inhalation Device (lantern slides and movie),
Maxwell Berry, M.D., and Albert Brown, M.D., Atlanta, Georgia.

Pneumoperitoneum (lantern slides),
Sydney Jacobs, M.D., F.C.C.P., New Orleans, Louisiana.

An Evaluation of Work Tolerance Criteria,
Benjamin L. Brock, M.D., F.C.C.P., Oteen, North Carolina.

A Tuberculosis Teaching Program for the Medical Profession (lantern slides),
Louis L. Friedman, M.D., Birmingham, Alabama.

Information Please in Medicine,
Dean B. Cole, M.D., F.C.C.P., Richmond, Virginia, *Moderator*
Medicine: Alvis E. Greer, M.D., F.C.C.P., Houston, Texas
Surgery: William F. Rienhoff, Jr., M.D., F.C.C.P., Baltimore, Maryland
Bronchoscopy: Chevalier L. Jackson, M.D., F.C.C.P., Philadelphia, Pa.
Public Health: Francis J. Weber, M.D., Washington, D. C.

Recent Developments in the Field of Tuberculosis Control,
Francis J. Weber, M.D., Senior Surgeon, Assistant Chief, Tuberculosis Control Division, U. S. Public Health Service, Washington, D. C.

Chest Surgery in the Tuberculous Negro,
David Harvey Shipp, M.D., F.C.C.P., Little Rock, Arkansas.

Some Observations Concerning Cystic Diseases of the Lung,
William A. Hudson, M.D., F.C.C.P., Detroit, Michigan.

Pulmonary Carcinoma — A Follow-Up Study,
William F. Rienhoff, Jr., M.D., F.C.C.P., Baltimore, Maryland.

Discussion on the Three Papers,
Opened by David Waterman, M.D., F.C.C.P., Knoxville, Tennessee.

Annual Banquet,
Mathew J. Flipse, M.D., F.C.C.P., Miami, Florida,
Governor of the College for Florida, *presiding.*

President's Address,
Carl C. Aven, M.D., F.C.C.P., Atlanta, Georgia,
President, Southern Chapter, American College of Chest Physicians.

Guest Speaker,
Charles M. Hendricks, M.D., F.C.C.P., El Paso, Texas,
President, American College of Chest Physicians.

X-Ray Conference.

The Southern Medical Association will meet at Miami, Florida, on November 4 to 7, 1946.

CUBAN CHAPTER

The Cuban Chapter will be host to the members of the American College of Chest Physicians at Havana, on Tuesday, November 5, 1946. Dr. Antonio Navarrete, Regent of the College for Cuba, has extended an invitation to the Fellows of the College to attend a meeting of the Cuban Chapter to be held at the Hotel Nacional. This meeting will be held the day following the annual meeting of the Southern Chapter of the College at Miami, Florida, Monday, November 4. Members of the College who wish to make the trip to Havana should communicate with the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois, for plane and hotel reservations.

MARYLAND - DISTRICT OF COLUMBIA CHAPTER

The Maryland - District of Columbia Chapter will meet at the Hotel Statler, Washington, D. C., Thursday, October 3, 1946. The following program has been arranged by Edgar W. Davis, M.D., F.C.C.P., Chairman of the Program Committee:

Scientific Session,
William F. Rienhoff, Jr., M.D., F.C.C.P., President, Maryland-District of Columbia Chapter, *presiding.*

"Errors in Diagnosis,"
Lawrence M. Serra, M.D., F.C.C.P., Baltimore, Maryland.

"Pulmonary Cyst,"
Otto C. Brantigan, M.D., F.C.C.P., Baltimore, Maryland.

"Congenital Atresia of the Esophagus with Tracheoesophageal Fistula,"
Cameron Haight, M.D., Ann Arbor, Michigan.

"Histoplasmosis,"
Chester W. Emmons, Ph.D., Bethesda, Maryland.

Presidential Address: *"Present Status of Surgical Treatment of Pulmonary Malignancy, A Follow-Up Study,"*
William F. Rienhoff, Jr., M.D., F.C.C.P., Baltimore, Maryland.

Business Meeting, Dinner, X-Ray Conference.

PACIFIC NORTHWEST DISTRICT CHAPTER

The Pacific Northwest District Chapter will hold its annual meeting at Vancouver, British Columbia, October 4-5, 1946. The following program will be presented:

Friday, October 4, 1946

Business Meeting, John E. Nelson, M.D., F.C.C.P., Seattle, Washington, President of the Pacific Northwest District Chapter, presiding.

Morning Scientific Session, Medical - Dental Auditorium

"Cavities Following Discontinuation of Pneumothorax,"
William Trapp, M.D., Tranquille Sanatorium, B. C.
Discussion: John E. Nelson, M.D., F.C.C.P., Seattle, Washington.
William Richardson, Jr., M.D., Seattle, Washington.

"Silicosis as an Industrial and Compensation Problem in British Columbia," C. H. Vrooman, M.D., Vancouver, B. C.
Discussion: G. F. Kincade, M.D., Vancouver, B. C.
Cedric Northrup, M.D., Seattle, Washington.

"Cor Pulmonale," G. F. Strong, M.D., Vancouver, B. C.
Discussion: Frederick Slyfield, M.D., F.C.C.P., Seattle, Washington.
A. Des Brisay, M.D., Vancouver, B. C.

Lunch, Vancouver Hotel

Afternoon Scientific Session, Medical - Dental Auditorium

William S. Conklin, M.D., F.C.C.P., Portland, Oregon, presiding.

"Anesthesia in Thoracic Disease," John H. Hutton, M.D., Portland, Oregon.
Discussion: Hubert H. Dumont, M.D., Vancouver, B. C.
James Blackman, M.D., Seattle, Washington.

"Experimental Planography,"
Gordon Truman, M.D., Tranquille Sanatorium, B. C.
Discussion: B. J. Harrison, M.D., Vancouver, B. C.
Byron Francis, M.D., F.C.C.P., Seattle, Washington.

"Mechanics of Respiration and Bronchospirometry,"
James Blackman, M.D., Seattle, Washington.
Discussion: Wesley Simpson, M.D., Vancouver, B. C.
William S. Conklin, M.D., F.C.C.P., Portland, Oregon

"Pulmonary Resection in Tuberculosis,"
Fred Jarvis, M.D., Seattle, Washington.
Discussion: William S. Conklin, M.D., F.C.C.P., Portland, Oregon.
James Blackman, M.D., Seattle, Washington.

Evening Session

Dinner, Vancouver Club. Speaker to be announced.
Wives of physicians attending this meeting are invited.

Saturday, October 5, 1946

Morning Scientific Session, Vancouver General Hospital (Vancouver Chest Clinic)

"Tuberculosis Control in British Columbia,"
W. H. Hatfield, M.D., Vancouver, B. C.
Discussion: Edwin Blomquist, M.D., Portland, Oregon.
Robert J. Anderson, M.D., San Francisco, California.

"A Study of One Hundred Consecutive Sanatorium Admissions After Five Years," G. F. Kincade, M.D., Vancouver, B. C.

The balance of the morning will be spent in presentation of cases which comprise the subject under discussion.

Following the morning session, which will disband promptly at 12:00 noon, there will be a brief tour of the hospital unit for anyone interested.

Afternoon: Golf.

Note: Physicians intending to attend this meeting are reminded to make their reservations at this time as hotel accommodations in Vancouver are very much in demand. There will be a tea served for the ladies at the home of Mrs. Elliott Harrison on Friday afternoon. All wives are cordially invited.

NEW JERSEY CHAPTER

The New Jersey Chapter will hold its fall meeting at the Auditorium of the Newark Beth Israel Hospital, Newark, on Friday, October 4, 1946, at 8:30 p. m. The following program will be presented:

"Streptomycin in Tuberculous Meningitis,"
Paul K. Bornstein, M.D., F.C.C.P., Asbury Park, New Jersey.

"Bronchoscopic Aspects of Pulmonary Diseases,"
Nathan Zvaifler, M.D., Newark, New Jersey.

"Surgical Aspects of Pulmonary Diseases,"
Henry S. Brotkin, M.D., Newark, New Jersey.

"Presentation of Interesting Cases,"
I. L. Applebaum, M.D., F.C.C.P., Newark, New Jersey, *Chairman.*

Dr. Harry Wessler, F.C.C.P., New York City, will be the guest speaker and he will open the discussion of the papers presented on the program.

WISCONSIN CHAPTER

The second annual meeting of the Wisconsin Chapter will be held at the Schroeder Hotel, Milwaukee, on Sunday, October 6, 1946. The following program has been arranged:

Scientific Session,
Leonard W. Moody, M.D., F.C.C.P., Bayfield, Wisconsin, *presiding*
"Loeffler's Syndrome,"
Theodore L. Squire, M.D., Milwaukee, Wisconsin
"Esophageal Surgery,"
Minas Joannides, M.D., F.C.C.P., Chicago, Illinois
"Histoplasmosis, Clinical and Pathologic Manifestations,"
Joseph F. Kuzma, M.D., Milwaukee, Wisconsin
"The Roentgen Diagnosis of Tumors of the Lung,"
Leo G. Rigler, M.D., Minneapolis, Minnesota
"Extrapulmonary Tumors of the Thorax,"
Jerome R. Head, M.D., F.C.C.P., Chicago, Illinois
"Manifestations and Modern Management of Pulmonary Suppuration,"
Paul H. Holinger, M.D., F.C.C.P., Chicago, Illinois
Dinner Meeting,
Carl O. Schaefer, M.D., F.C.C.P., Racine, Wisconsin, *presiding*
"Psychosomatic Medicine and Tuberculosis,"
Charles M. Hendricks, M.D., F.C.C.P., President, American College of Chest Physicians, E. Paso, Texas
X-Ray Conference,
Ethan B. Pfefferkorn, M.D., F.C.C.P., Oshkosh, Wisconsin, *presiding*

ILLINOIS CHAPTER

The Illinois Chapter will hold a joint meeting with the Chicago Tuberculosis Society on Thursday, October 24, 1946, at the Bismarck Hotel, Chicago. The scientific program will include a talk by Dr. Jay Arthur Myers, F.C.C.P., of Minneapolis, on "Early Tuberculosis".

INDIANA CHAPTER

The Indiana Chapter held a meeting at the Columbia Club, Indianapolis, on Sunday, August 18, 1946. The following program was presented:

"The Present Status of BCG,"
O. T. Kidder, M.D., F.C.C.P., Fort Wayne, Indiana.
"Review of Cases Presented at the Tri-State Conference on Sanatorium Practice, at St. Louis, March, 1946,"
J. V. Pace, M.D., F.C.C.P., New Albany, E. W. Custer, M.D., F.C.C.P., South Bend, and H. B. Pirkle, M.D., F.C.C.P., Rockville, Indiana.
X-Ray Conference.

VIRGINIA CHAPTER

The Virginia Chapter will hold its annual meeting at the Cavalier Hotel, Virginia Beach, on Wednesday, October 16, in connection with the meeting of the Virginia Medical Society.

MICHIGAN CHAPTER

The Michigan Chapter will hold its annual meeting in connection with the meeting of the Michigan State Medical Society, at Detroit, Michigan, September 25-27, 1946.

ARGENTINE CHAPTER

The Argentine Chapter held its annual meeting at Alta Gracia, Cordoba, July 13, 1946. The following officers were elected:

Professor Dr. Raul F. Vaccarezza, Buenos Aires, *President*
Dr. Agustin Caeiro, Cordoba, *Vice-President*
Dr. Alvaro E. Bence, Buenos Aires, *Secretary-Treasurer*

The Argentine Chapter has submitted a number of proposals to the Board of Regents of the College which have been turned over to the Council on Pan American Affairs for study.

SEVENTH PAN AMERICAN CONGRESS FOR TUBERCULOSIS (ULAST)

The Seventh Pan American Congress for Tuberculosis sponsored by the Union of Latin American Societies Against Tuberculosis (ULAST) will be held at Lima, Peru on March 17-22, 1947, instead of January 25-31, 1947, as previously announced. Dr. Ovidio Garcia Rosell, Professor of Tuberculosis at the National University of San Marcos, and Governor of the College for Peru, is the President of this Congress. Other Fellows of the College in Peru who are assisting Professor Garcia Rosell in completing arrangements for the Congress are: Prof. Juan A. Werner, Dr. Luis A. Hubner, Dr. Max. Espinoza Galarza, Dr. Luis Cano Gironda, Dr. Juan Escudero Villar, Dr. Victor Tejada, Dr. Mario Pastor, Dr. Victor Narvaez, Dr. Ramon Vargas Machuca, Dr. Horacio Cachay Diaz, Dr. Leopoldo Molinari Balbuena, Dr. Roman del Castillo, Dr. Juan Macchiavello, and Dr. Flavio Guadalupe.

At the Annual Meeting of the College held at San Francisco, June 27-30, 1946, the Board of Regents voted to send the following delegates to the Lima Congress:

Chevalier L. Jackson, M.D., Philadelphia, Pennsylvania,
Chairman of the Council on Pan American Affairs.
Leo Eloesser, M.D., San Francisco, California,
Vice-Chairman of the Council on Pan American Affairs.
Jay Arthur Myers, M.D., Minneapolis, Minnesota,
Chairman, Editorial Board, "Diseases of the Chest".
Murray Kornfeld, Chicago, Illinois,
Executive Secretary, American College of Chest Physicians.

Mr. Kornfeld will visit a number of the other South American countries following the Lima meeting.

All members of the College have been invited to attend the Congress. For further information, please communicate with the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

MEXICAN SECOND NATIONAL CONGRESS ON TUBERCULOSIS

The Second National Congress on Tuberculosis, sponsored by the Sociedad Mexicana de Estudios sobre Tuberculosis, was held in Mexico City during the last week of July, 1946. All of the Fellows of the American College of Chest Physicians in Mexico participated in the Congress.

All told, more than 120 papers were presented, covering every phase of tuberculosis. Extrapleural pneumothorax occupied an important place in the agenda and eight papers were read on this subject. The chest

specialists in Mexico have given a great deal of attention to this form of surgical collapse and it is carried out extensively at the Sanatorio de Huipulco, which is under the direction of Dr. Donato G. Alarcon.

Fellows of the College from other Latin American countries who participated in the Congress were: Dr. Gumersindo Sayago, Cordoba, Argentina; Dr. Reginaldo Fernandes, Rio de Janeiro, Brazil; and Dr. Amadeo Mastellari, Panama City, Republic of Panama. Other physicians from the Latin American countries who participated in the Congress were: Dr. J. Velez, Havana, Cuba, and Dr. F. Garcia Capurro, Montevideo, Uruguay. Dr. Johs. Holm, Copenhagen, Denmark, spoke on the use of BCG in Denmark. The following Fellows of the College from the United States attended the Congress and presented papers:

"Pulmonary Resection in Tuberculosis,"
Frank S. Dolley, M.D., Los Angeles, California.
"Recent Advances in Tuberculosis,"
Herman E. Hilleboe, M.D., Washington, D. C.
"Bronchoscopy,"
Chevalier L. Jackson, M.D., Philadelphia, Pennsylvania.
"Tuberculosis in Pregnancy,"
Louis L. Friedman, M.D., Birmingham, Alabama.

The physicians from North and South America were guests of the Sociedad Mexicana de Estudios sobre Tuberculosis and were entertained by the Society during their stay in Mexico City. A trip to the mines at Taxco, for the purpose of holding a conference on silicosis, was one of the highlights of the Congress.

More than 400 physicians from Mexico and from many other countries registered for the Congress.

NATIONAL COUNCIL OF TUBERCULOSIS COMMITTEES

The National Council of Tuberculosis Committees of the College is pleased to publish the following communication addressed to Dr. Charles M. Hendricks, President, American College of Chest Physicians, by the Secretary of the State Medical Association of Texas:

State Medical Association of Texas
Office of the Secretary
1404 W. El Paso St., Fort Worth 3, Texas

Committee on Tuberculosis: July 30, 1946

Dr. C. M. Hendricks, *Chairman,* El Paso (five years)
Dr. Charles J. Koerth, Junction (four years)
Dr. David McCullough, Kerrville (three years)
Dr. Howard T. Barkley, Houston (two years)
Dr. Jesse B. White, Amarillo (one year)

Gentlemen:

I am directed to advise you of your appointment by President Dr. C. C. Cody to the Committee on Tuberculosis of the State Medical Association. It will be noted that after each of your names, as above listed, is given the term of office. I should advise, in this connection, that in accordance with a recommendation of the Board of Trustees to the House of Delegates at the Galveston annual session, an amendment to the By-Laws was adopted making the Committee on Tuberculosis a standing committee, with overlapping five year terms of office.

It was, therefore, incumbent upon President Dr. Cody to appoint the personnel of this committee on that basis.

At the end of the present year, the President-Elect will appoint to fill the vacancy created by the expiration of the term of office of one member of the committee, and that appointee and all succeeding appointees to the committee will serve for terms of five years. While the President-Elect appoints, it is required that subsequent appointments shall be confirmed by the House of Delegates.

The By-Law providing for the Committee on Tuberculosis as a standing committee further stipulates that no member shall serve for more than two terms of five years each.

The By-Law further points out that

> "... It shall be the duty of this committee to give continued study and consideration to the problem of tuberculosis in all of its phases, cooperate with the State Health Department and constituted health authorities throughout the state in the campaign of prevention and suppression of disease, and promote and direct activities of the State Medical Association of Texas in this connection."

Thanking you for advising this office, at your earliest convenience, if you will accept this appointment tendered you by President Dr. Cody, I am

Sincerely yours,
(s) R. B. Anderson,
R. B. Anderson, M.D.

RBA:abh
cc — Dr. C. C. Cody.

The National Council of Tuberculosis Committees wishes to go on record as congratulating the members of the State Medical Association of Texas in setting up this important committee and for accepting the recommendations submitted by the officials of the Texas Chapter of the College.

James H. Stygall, M.D., *Chairman,*
National Council of Tuberculosis Committees.

LT. COLONEL LEO V. SCHNEIDER

An Oak Leaf Cluster to the Army Commendation Ribbon was recently awarded to Lt. Colonel Leo V. Schneider, Chief Tuberculosis Consultant for U. S. Military Government in Germany for "Outstanding and meritorious service from October 25, 1945 to April 19, 1946". The citation read in part:

> "Through your unrelenting and persistent efforts and by application of your thorough knowledge and training, the necessary organization for the resumption of effective case finding, isolation and treatment of tuberculosis by the German Health Authorities has been reestablished.
>
> Your initiative, diligence and devotion to duty have accomplished results which reflect great credit upon yourself and the Army of the United States.
>
> In your capacity as Consultant to the United States Member of the Allied Health Committee you have, through your tact and diplomacy, greatly facilitated the work of the United States Government and have helped create a spirit of friendliness and cooperation between the four powers now occupying Germany."

Dr. Leo V. Schneider, F.C.C.P., graduated from Donskoy University, Russia, in 1920, Johns Hopkins University School of Hygiene and Public Health, in 1934, and entered the Service on October 17, 1942.

College News Notes

ANNOUNCEMENT

Dr. Edgar C. Harper was appointed Governor of the College for the state of Virginia, to complete the unexpired term of Dr. Dean B. Cole, who was elevated to the office of Regent, District No. 4, comprising the states of Maryland, Virginia, West Virginia and the District of Columbia.

ANNOUNCEMENT

The Scientific Program Committee, American College of Chest Physicians, will be pleased to receive manuscripts or abstracts for approval by the committee in connection with the 13th Annual Meeting of the College to be held in Atlantic City, in June, 1947. Please address all communications to the Chairman of the committee.

Andrew L. Banyai, M.D., *Chairman*, Scientific Program Committee
Muirdale Sanatorium, Milwaukee 13, Wisconsin

Burgess Gordon, M.D.
Philadelphia, Pennsylvania

Minas Joannides, M.D.
Chicago, Illinois

COLLEGE DIRECTORY

The information for the new College Directory is now being compiled for the printer. Members of the College who have not as yet submitted the necessary information for a listing in the Directory should write at once to the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois, for Form F-25.

Captain Robert E. Duncan, MC, USN, F.C.C.P., formerly Medical Director of the National Naval Medical Center, Bethesda, Maryland, is now stationed in Hawaii.

Book Review

Pneumoperitoneum Treatment. By Andrew L. Banyai, M.D., F.A.C.P., F.C.C.P., Associate Clinical Professor of Medicine, Marquette University Medical School, Milwaukee, Wisconsin. Price $6.50. Pp. 376, with 76 illustrations. St. Louis: The C. V. Mosby Company, 1946.

There has been a gradually increasing interest in the therapeutic application of pneumoperitoneum during the past decade. Simultaneously, considerable amount of work has been written on this topic in medical journals in this country and abroad. The recently published, unpretentious and interesting book of Banyai is the first one of its kind written on this subject. It is a welcome addition to much needed information in this field. This book—remarkable for its brevity and good sense—is recommended as presenting widely useful and comprehensive data on the technical and manifold therapeutic aspects of artificial pneumoperitoneum. It includes an extensive, meticulous review of pre-existing clinical observations on this subject which are well integrated into a homogeneous whole. Banyai's interest in pneumoperitoneum dates back

to 1929 when he began to use this measure in the treatment of tuberculous peritonitis and enterocolitis. Two years later, following an accidental pneumoperitoneum during an attempted artificial pneumothorax, he recognized the feasibility of this treatment in the management of pulmonary tuberculosis. Since then, a great deal of pertinent information has been recorded relative to the systematic application of pneumoperitoneum in various thoracic diseases. The most essential data from this material are presented in this book in a concise, clear and competent manner. The author's solid clinical background and extensive bedside experience endow the views expressed in the text with competency and authority. The illustrations are well chosen, instructive and most serviceable for the portrayal of the text. The legends given with the figures are adequate and offer a comprehensive summary of each pertinent item. The tables are helpful in the composite analysis of various observations. The simplicity of technique and the safety of this measure are given proper emphasis. The technical details are described with meticulous care and in simple, understandable terms which should serve as a useful guide to all those particularly interested in this aspect of pneumoperitoneum. Attention is called to the possible complications as noted by the author and other observers. The significance as well as the prevention of these conditions are discussed clearly. The author deserves special credit for his original studies on physiological changes which follow induced pneumoperitoneum. The respective chapters are based on a vast amount of thorough and painstaking investigative work. They contribute a firm foundation to the clear understanding of the mechanical effect of pneumoperitoneum on the lung. At the same time, the theoretical ideas of others are reviewed with a critical eye and keen judgment. Due credit is given to the experimental studies of other research workers whose findings have added substantially to a sound concept of the healing process in pulmonary tuberculosis. A commendable, scholarly survey is given to such items as the use of pneumoperitoneum in tuberculous peritonitis and enterocolitis, nontuberculous ulcerative colitis, vomiting of pregnancy, severe hiccough, gastrointestinal disturbance following phrenic nerve operation, pulmonary emphysema, tuberculous and nontuberculous pulmonary hemorrhage, bronchial asthma and others. The indications for and the contraindications to pneumoperitoneum in pulmonary tuberculosis are presented in an admirable, unbiased manner. The thoughts expressed on this subject are derived from many years of personal observations of the author and of other clinicians. The author is seriously opposed to therapeutic nihilism and negativism. At the same time, it is emphasized in this book that pneumoperitoneum should not be considered a competitive measure in relation to other forms of relaxation therapy in pulmonary tuberculosis. On the contrary, it is pointed out that "pneumoperitoneum should not be given except on the basis of clinically justifiable indications. The therapeutic results are predicated, in a large measure, upon the scrupulous selection of cases." The bibliography is excellent and inclusive of all the important available pertinent literature. The critical selection of its items is an accomplishment of merit. The book is well indexed. This work as a whole is informative and didactic at the same time. It is carefully written, clearly printed and in a high degree readable. The author is to be complimented on the thoughtful and scrupulous preparation of this book. It should prove to be of value to the interested physicians.

Minas Joannides, M.D., Chicago, Illinois.

CHAMPNEYS HOLT HOLMES

1894 - 1946

PAST PRESIDENT

AMERICAN COLLEGE OF CHEST PHYSICIANS

CHAMPNEYS HOLT HOLMES

1894 - 1946

Dr. Champneys Holt Holmes, known to his many friends as "Champ" Holmes, was born in Macon, Georgia on January 30, 1894 and died in Jacksonville, Florida on June 12, 1946.

He received his early education in the Macon city schools where he graduated with honors from Lanier High School in 1911. Dr. Holmes attended the University of Georgia from 1912 to 1915 and received a B.S. degree cum laude. He entered Johns Hopkins University in 1915 and received his M.D. degree in 1919.

Dr. Holmes was a Charter Member of the American College of Chest Physicians and served as President of the College in 1938-1939. He also served as a member of the Editorial Board of "Diseases of the Chest" and as Historian of the College. Dr. Holmes was an active member of the American Medical Association, Fulton County Medical Society, Medical Association of Georgia, American Trudeau Society, Georgia Tuberculosis Association, National Tuberculosis Association and Atlanta Tuberculosis Association.

During his school days, he was active in the Phi Delta Theta and Phi Chi organizations and participated in the activities of the gridiron and glee clubs. He was also an accomplished pianist. He served internship and did postgraduate work at the following institutions: Church Home Infirmary, 1919, New Haven Hospital, 1919-1920, Willard Parker Hospital, 1920, and Bellevue Hospital, 1921-1922. He was chief of the tuberculosis service at Bellevue Hospital.

Dr. Holmes came to Atlanta after finishing his service at Bellevue Hospital in 1922. He entered private practice and soon became recognized in Atlanta and throughout the nation as a great physician. His interest in diseases of the chest was manifest, and his colleagues soon recognized his ability as a specialist. He was the author of many articles that appeared in various journals and periodicals. He continued in this specialty until ill health forced his retirement in July, 1945.

He possessed many fine virtues, ability, integrity and honesty, all of which helped to make an ideal physician. He had a good sense of humor. His patients and friends loved him and looked forward to their association with him for inspiration and help. For his friends and patients, he had a smile of encouragement and a word of cheer. His friends and associates in medicine suffered a loss as the result of his retirement and death. In his passing, the medical profession lost a most brilliant member and the community a citizen of rare merit. His church membership was at All Saints Episcopal, Atlanta, Georgia.

A resolution was adopted by the members of the Fulton County Medical Society deploring the untimely death of Dr. Holmes and extending deepest sympathy to each member of his family.

It was resolved that a copy of this resolution be spread upon the minutes of the society and one be sent to each member of his family.

C. C. Aven, M.D., *Governor for Georgia.*

HYMAN I. SPECTOR

1894 - 1946

REGENT

AMERICAN COLLEGE OF CHEST PHYSICIANS

HYMAN I. SPECTOR

1894 - 1946

Hyman I. Spector was born in Russia on July 15, 1894. He came to Chicago in his early teens and finished eight grades in two years. After graduating from Crane Technical School in 1915, he worked one year before entering Illinois University Medical School. The first World War interrupted his schooling temporarily, but he received an honorable discharge after one year of service. He graduated in 1921 with the B.S. and M.D. degrees.

Doctor Spector interned one year at the St. Louis City Hospital, then became resident physician, chief resident and superintendent of Robert Koch Hospital, the municipal tuberculosis sanatorium of St. Louis. He was superintendent from 1923 to 1925.

In January of 1926 he married Charlotte Koplovitz. Providing amply for his wife and three children was always foremost in his mind. He was tuberculosis controller for the City of St. Louis in 1925-26 and began private practice about that time. He became affiliated with the Teaching Staff of St. Louis University in 1928 as an associate physician and rose to the rank of Associate Professor of Internal Medicine (1944) and chief of the Chest Division.

His pen, meanwhile, was likewise busy. He wrote ten pages in the tuberculosis clinic Manual, published in 1938 by the National Tuberculosis Association. He published thirty papers between 1935 and 1945; half of which were on tuberculosis and the remainder on non-tuberculous diseases. The latter included such subjects as lung abscess, silicosis, Loefflers syndrome, Sarcoidosis, and pneumonia.

Doctor Spector devoted a good part of his time to public affairs, resuming his duties as tuberculosis controller of the City of St. Louis from 1931 to 1934 and as chief of the Medical section of the St. Louis Health Department from 1934 to 1943. He was Chairman of the Committee on Industrial Health for the Missouri State Medical Association from 1944 to 1946, and was instrumental in formulating a comprehensive program for safeguarding the health of workers in industry. This work Doctor Spector believed to have been one of his finest.

During the past twelve years he gave unflinchingly his time and energy to the welfare of the American College of Chest Physicians. He held the office of Regent during the past two years, and was chairman of the Board of Examiners. He was Vice-President of the St. Louis Tuberculosis Society and a member of the Executive Committee of the National Tuberculosis Association. He served on numerous committees of the many societies with which he was affiliated.

His career was short, yet his attainments noteworthy. Above all, I can say that Hyman Spector was a kind man, honest and sincere, and an untiring worker. He realized that he was ill, but his high sense of duty urged him to make the trip to San Francisco late in June to attend the annual meeting of the American College of Chest Physicians. He died of myocarditis at Laramie, Wyoming, July 6, 1946, while on the train, returning home from this meeting.

A. J. Steiner, M.D., *Secretary-Treasurer, Missouri Chapter*, St. Louis, Missouri.

Positions Wanted and Available

POSITIONS AVAILABLE

Assistant physician wanted for tuberculosis sanatorium (Massachusetts). Must be graduate Class A school with some experience in tuberculosis. State age, professional history and other details first letter. Please address Box 138A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Physician wanted, graduate of Grade A medical school, for routine sanatorium work. $200.00 per month, full maintenance for self and family with furnished cottage. If interested please write Box 147A, American College of Chest Physicians, 500 N. Dearborn Street, Chicago 10, Illinois.

Assistant physician; approved tuberculosis sanatorium; all types of collapse therapy; salary includes full maintenance; apply, giving full particulars, State Sanatorium, Glencliff, New Hampshire.

Position available, resident physician, male, approved tuberculosis sanatorium, all types of collapse therapy, must be eligible for Michigan license, salary $2400 to $3000 per year, plus full maintenance. Apply, giving full particulars, to Medical Director, Oakland County Tuberculosis Sanatorium, Pontiac, Michigan.

Positions open for two resident physicians in Ohio sanatorium; 180 adult beds; complete thoracic surgery department; x-ray department; laboratory department; 80 physicians on visiting staff. Residency covers both medical and surgical patients. Appointment for one year or longer. Salary $250 per month, no maintenance. Meals, room and laundry available at the sanatorium for $35 per month. Interested physicians please write Box 144A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Associate Medical Director wanted; hospital in Indiana. Minimum of three years experience in a recognized tuberculosis sanatorium, and preferably five years experience. For further particulars please write Box 145A, American College of Chest Physicians, 500 North Dearborn St., Chicago 10, Illinois.

Resident physician needed; hospital in Indiana. No tuberculosis training is required, but some experience is preferable. For further particulars please write Box 146A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

POSITIONS WANTED

Well trained chest physician, to be released from service, would like to become associated with physician in private practice, clinic or sanatorium. Preferably in California. For further information please address Box 226A, American College of Chest Physicians, 500 North Dearborn St., Chicago 10, Illinois.

Physician, 31 years of age, married, one child, residing in Costa Rico, was assistant physician at 250 bed tuberculosis institution, wishes position in sanatorium in the United States where there is opportunity to learn chest surgery. Member, American College of Chest Physicians. For further information please address Box 227A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Fellow, American College of Chest Physicians, chest surgeon, bronchoscopist, well trained, formerly member of university teaching staff, desires position in sanatorium. For further information please write Box 228A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Surgeon recently released from service interested in association with an established thoracic surgeon or clinic, or a position in a hospital or sanatorium, preferably in the capacity of surgeon with opportunity for private practice. Well trained in thoracic surgery and bronchoscopy. Good references. For further information please address Box 229A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Position wanted in thoracic surgery and bronchoscopy; full time institutional work or part-time and private practice. Fellow, American College of Chest Physicians, being released from service. For further information please address Box 231A, American College of Chest Physicians, 500 North Dearborn St., Chicago 10, Illinois.

Woman physician with many years of experience in chest diseases desires position with a group, clinic, or as a resident in a sanatorium. For complete information please address Box 232A, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.